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606. NEVETT, Thomas. The Rational Oeconomy of Humane Bodies, wherein the Nature of the Chyle, Blood, Lymph, and other Juices, is discover'd, the Use of the various Ferments, as the Saliva, Bile, Pancreatic Juice, and that of the Spleen, with their Manner of Secretion explained, natural Excretion describ'd, the preternatural State of the Body in all its Diseases detected, together with a Succinct Method of Practice, and Select Remedies in Feavers; as also sufficient Hints for the Cure of most other Distempers. London, by T. Parkhurst and J. Robinson, 1704.

12mo., contemporary sheep, label lacking. A fine copy.

* * A very rare book which is possibly the first work in the English language devoted to endocrinology. Thomas Wharton's 'Adenographia' (1656) was published in Latin. The 'Rational Oeconomy of Humane Bodies' is not listed in Sir H. D. Rolleston's 'The Endocrine Organs' (1936). No copy has appeared at auction since 1902 and it is not in the Wellcome, National Medical Library, Osler or Waller collections. There are, however, two copies in the Hunter Collection at Glasgow and a further copy in the library of Wisconsin University. Nevett's other medical publication 'A Treatise of Consumptions' (1697), is also of great scarcity, there is a copy in the B.M., but it is unlisted by Wing.

Nevett appears to be as elusive as his work, he is not mentioned by the D.N.B. but is, however, noted by R.W. Innes Smith 'English Speaking Students of Medicine at Leyden...' (1932) p.170 - M.D. Utrecht 1703 and practiced in London.

Mrs Grimes



THE
Rational Oeconomy
OF
Humane Bodies.

T H E
Rational Oeconomy
O F
Humane Bodies,
W H E R E I N

The Nature of the Chyle, Blood, Lymph, and other Juices, is discover'd, the Use of the various Ferments, as the Saliva, Bile, Pancreatic Juice, and that of the Spleen, with their Manner of Secretion explain'd, natural Excretion describ'd, the preternatural State of the Body in all its Diseases detect-ed, together with a Succinct Method of Practice, and Select Remedies in Feavers ; as also sufficient Hints for the Cure of most other Distempers.

By THO. NEVETT, M.D.

L O N D O N :



Printed, and Sold by T. Parkhurst, at the Bible and Three Crowns in Cheapside, and J. Robinson, at the Golden-Lion in St. Paul's Church-Yard. 1704.

TO THE
READER.

Since my first Entrance upon the Study of Physic, it is now upwards of Twenty Years, in which Time some serious Observations have been made in Quest of the Nature, Causes, and Symptoms, of Diseases Incident to Humane Bodies, the Method of Curing them according to the Judgment of several Writers, as also the particular Operations of Medicines; but finding the Divisions of Diseases extravagantly
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To the Reader.

numerous, the Causes assign'd them unaccountably occult, and the Medicines appropriated to their Cure for the most Part not extraordinary, it puzzell'd my weak Brain, so that I could not tell what to do, or think, with any rational Conjecture ; for not being able to find out the true Causes of Diseases, the whole Possè of my Reason was apt to conclude I could never effect their Cure, with any probable Certainty, unless by Accident, as those that shoot at Rovers may chance to hit the Mark, or the Blind catch a Hare.

Afterwards when I applied my Mind wholly to the Practice of Physic, (having before made
some

To the Reader.

Some considerable Progress in the Knowledge of Anatomy, whereby the admirable Texture and artificial Connexion of the Internal Parts of humane Bodies were more manifestly discover'd) I began to entertain different Notions of the Chyle, Blood, and Chyme, made in the Stomach, Heart and Bowels, and from them conveyed to the several Parts for their Nourishment, supposing the different Disposition of these Juices must necessarily occasion great Changes to our Bodies.

Notwithstanding which additional Light (together with the Perusal of several practical Authors)

To the Reader.

thors) the Representation of things appear'd still somewhat Dark, Wavering and Uncertain, until I became fully satisfied by reading over the more Clear and Evident Instructions of that Famous Professor of Physic, Michael Etmuller, whose Works are justly entitul'd to the Character of a curious Collection of the best of our modern Authors, worthy of all Imitation, as being the Compleatest Body of Physic yet Extant; since my Acquaintance with them I confess they have been my chief Counsellors.

In my Opinion his Method of healing Diseases is Plain and Easie, (as plain Dealing, so plain Teaching, is best) for he ascribes

To the Reader.

ascribes the Cause of all Chronical, Distempers to the Stomach, and first Passages, whereby the Cure of those Diseases (split into a vast Multitude, according to the numberless Train of Symptoms proceeding from them, and dubb'd with the Title of Diseases, meerly to perplex the Cause) may be compass'd by one single Method, and consequently a great deal of superfluous, unnecessary and miscellaneous, Practice, (not without just Ground) superseded.

The great Advantage which accrues to the Reader from the satisfactory Pleasure he seems to take in annexing good Reasons to what he delivers, together

To the Reader.

ther with the convincing Force of his Arguments, whereby he illustrates the dark, abstruse, and difficult, Points of Physic so clearly and familiarly, as to accommodate them to the meanest Capacity, do fully recommend not only the Usefulness of the Book but the solid Judgment and undeniable Integrity of the Author ; and as the Truth of his Experiments hath been frequently experienc'd by my Practice, as well as many others, so the Certainty of my Hypothesis hath been sufficiently confirm'd by his, and also by my own, Experience.

Wherefore tho' it cannot reasonably be expected this Product of my Labours should be acceptable
to

To the Reader.

to all, or accommodate every
Palate, (for I am not Ig-
norant of the Scoffing Rewards
lavishly conferr'd upon the In-
dustrious, nor of the Malignant,
Detracting, and Unreasonable,
Censures with which useful
Inventions and Improvements
are commonly treated, especially
in this censorious Age, wherein
too many approve of nothing
but the Minerva's of their own
Brain) yet in Hopes that some
of the more considerate, unpre-
judic'd and sensible Part of
Mankind will weigh things in a
just Ballance, consult their own
Interest, and be perswaded to
comply with the most agreeable
Method, and the most approv'd
Medicines, pointed at in the en-
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To the Reader.

*su*ing Treatise, which with concurring Assistance, may probably be crown'd with Success; I am resolv'd not to be discourag'd, but to continue my Honest Endeavours of promoting the Public Good, in despite of all Gainsayings whatsoever.

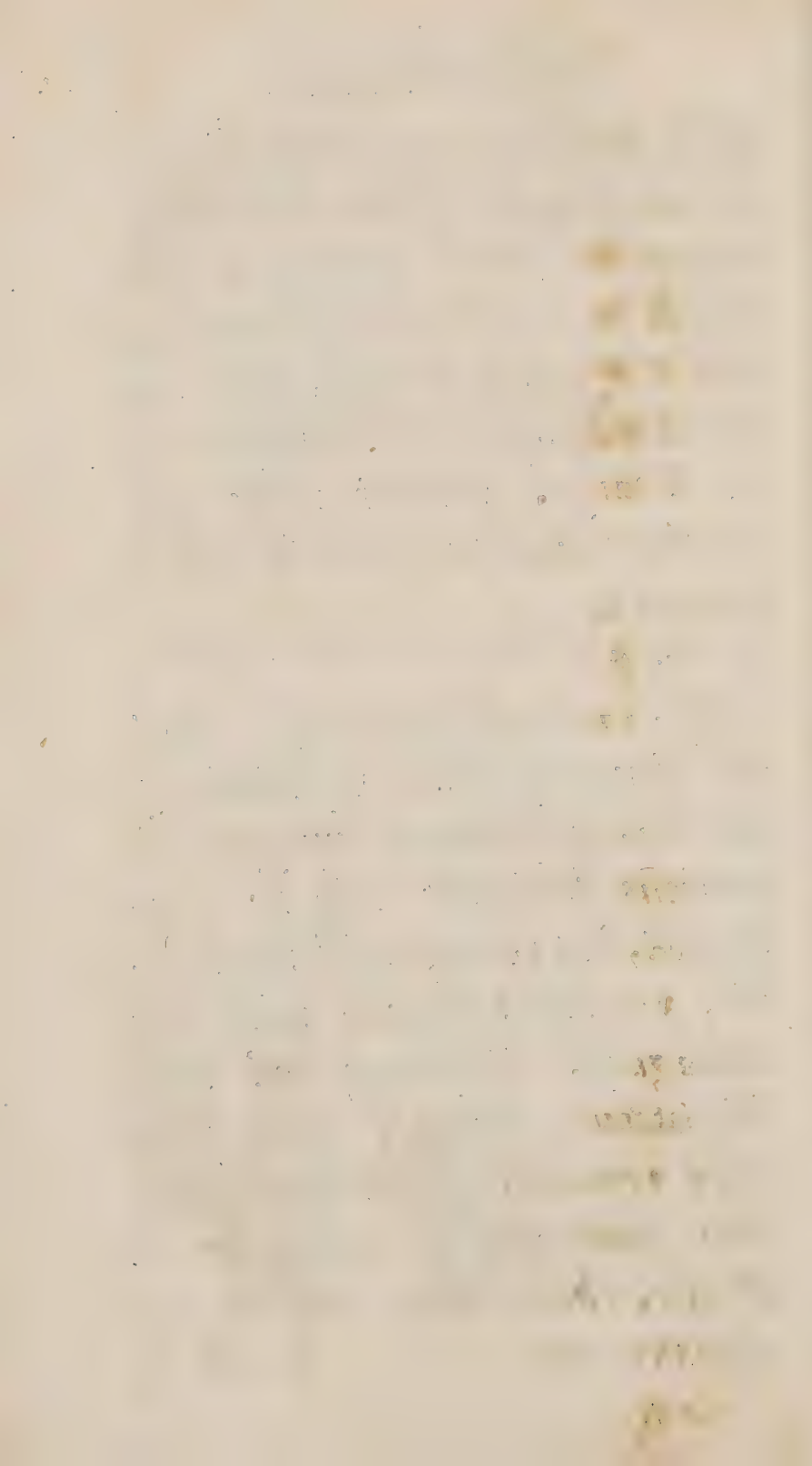
It is not the real Design of these Lines to cause an Uproar among the Worshippers of the great Goddess, whose Business it is to make Silver Shrines for that Paultry Deity, whereby no small Gain is brought to the Crafts-men, but faithfully to discharge the Duty Incumbent upon me, (according to the Measure of that Talent which my Great Master hath intrusted me with,

To the Reader.

with, and to whom I must shortly be accountable) in directing those who labour under, or are subject to, any Sort of Distempers, how they may Safely, with no Hazzard, and not Extraordinary Charge, recover their lost Health, and preserve it when recover'd.

If notwithstanding, thro' the Envy of some, or Malevolent Spirit of others, my good Intentions should not only be frustrated, but recompens'd with Evil, yet my Labour is with the Almighty, All-seeing and most Righteous, Judge, who liberally rewards them that serve him sincerely, to whom be all Praise, both now, and in the Ages to come.

T H E



T H E

Rational Oeconomy

O F

Humane Bodies.

WHEN we consider the *Subject* of Physic, which is *Man*, (that Curious Piece of Workmanship, the Chief of the Ways of God upon Earth) and the *End* thereof, which is the *Health* of his Body, who can but truly admire the Excellency of that Art which preserves a good Temperament, and regulates the various Disorders, which frequently happen in such an exquisite Piece of Mechanism ? Neither doth it at all derogate from

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from this noble Science, that some of its Precepts must be gather'd from Conjecture, seeing for the most Part they prove true, being built upon the sure Foundation of Reason and Experience.

The Theory of this Practical Science in every Branch of it affords no small Diversion and Entertainment to those who diligently search as well into the natural Constitution, as the degenerate State, of Humane Bodies, reaching after the Knowledge of Diseases, and their Symptoms, that they may be enabl'd not only to know the Distemper, but also to foretel the Consequences of it.

The necessary Retainers to the Speculative Part of Physic, do not in vain conspire to divert the Ingenious Minds with a vast Number of useful Curiosities; for *Anatomy*, which is an artificial Dissection of the Body, in order to attain the Knowledge

ledge of its Frame, discovers the beautiful Figure, admirable Texture, and artificial Connexion, of every individual Part, exactly adapted to the Performance of their several Actions and Uses. How great are the unseen Wonders of the *Microcosm*? How manifold the Rarities and Miracles which the great Creator hath most exactly compacted in every individual Part and Cavity of the Humane Body? All the vital Instruments and Wheels, whereby the natural Watch of our Life is perpetually moved, from the first Moment to the last, are lock'd up within a curious Cabinet, where the several Pulleys are prepar'd, the various Weights hung on, and the harmonious Chime wound up, by the Hand of Divine Power, without opening any Part thereof; infinitely surpassing the exactest Pourtraiture of the most Skilful Statuary, and the finest Movements of the most artificial Machin, the Beauty of whose

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Works

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Works lyes wholly in the external Figure, and Proportion of their Parts; so that by this necessary Concomitant of the Theory we are taught not only to know our selves, and all the hidden Parts of our Body by ocular Inspection, but thankfully to adore and admire the infinite Wisdom, Goodness, and Power, of our Great Creator, who hath thus fearfully and wonderfully made us.

Neither is *Chymistry* wanting to instruct us how to analize mixt Bodies, and separate the different Substances that are found in them, whereby the active Principles of natural Things are render'd more subtile, volatile and penetrating, fit to furnish a compleat Dispensary with the choicest Medicines, extracted by this Spagyric Art out of the Mineral, Animal, and Vegetable, Kingdoms.

But the real Advantage and Benefit of Mankind results from a regular

gular and safe Practice, and the Theory, with its whole Train of Attendants, may justly challenge their deserv'd Praises, so far as they are serviceable to the Improvement of the practical Part of this most Noble Art, otherwise they are nothing but useless Curiosities.

How Mean and Despicable soever the original Matter of humane Bodies be, their Formation and Texture is very fine and wonderful; so curiously fram'd that some of the Parts cannot be discern'd by the most perspicacious Eye without the Help of a Microscope. Who then can attain to a certain Knowledge of its Principles?

However, we may borrow some feint Resemblances from the external Fabric of a curious Machin, which sets forth the grosser and more material Parts, as the Internal Wheels and Springs represent the more Subtile and Active.

Some further Light we may receive from the Experience of Chymists, in making the *Analysis* of mixt Bodies, where they find Five Sorts of Substances, from whence they conclude, there are Five Principles in Humane Bodies, Three of which are Active, viz. *Spirit*, *Oil* and *Salt*; and Two Passive, viz. *Water* and *Earth*. The Active by Reason of their great Motion cause all Manner of Action; the Passive being in Repose themselves, only serve to hinder the quick Motion of the Active, and be proper Receptacles for them.

Others make the Spirits (Analogically so call'd by Reason of their Activity) to consist of a Volatile Oily Salt, or Salino-Sulphureous Nature. Suppose it to be so (till a more probable *Hypothesis* can be found) the whole Mass of Blood, Chyle, and other Juices in Humane Bodies, to be compounded of these

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Four Principles, viz. *Saline*, whether Acid, or Alcalious, Volatile or Fix'd; *Sulphureous*, *Watery* and *Earthy*, whose due Proportion and Texture constitute a good Temperament, performing all regular Motions and Actions, which is the true Measure and Standard of Health, as their Disproportion and uneven Twisting together produces irregular Motions, and infinite Disorders, the least of which may in some Sense be term'd a Disease.

The Acid and Alcalious Salts, by Reason of their opposite Nature, and active Quality, maintain a Brisk Engagement with each other, and cause greater or lesser Alterations in the Constitution of our Body, proportionable to their Purity and Sharpness, in which Action the other Principles being in a perpetual Inter-course with them, are not permitted to observe an exact Neutrality, and hence come the intestine Motions of

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the Blood and Juices, Regular and Irregular, Natural and Preternatural, with great Variety of Disorders, and a Train of innumerable Symptoms, commonly call'd Diseases, which if they were reduc'd to the Number of the contending Principles (with Respect to the Method of curing Diseases) in my Opinion might render the Practice of Physic much more Easie, Safe, and Effectual, and also lop off a great deal of superfluous and unnecessary Practice.

Physic is an Art of preserving Health in Humane Bodies by proper Means ; or it is an Art of preserving present, and restoring lost, Health ; or according to *Hippocrates*, it is an Art Conversant about things Healthful, Unhealthful, and Neuter.

Physic is call'd an Art, or a practical Science, because all its Precepts are design'd for Action, or the doing
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of something, and therefore Physic is wholly Practical.

The End of Physic (Natures Handmaid) is Health, which is chiefly intended by the Physician, even in Diseases call'd incurable, as much as is possible to be done; for those things that are not in the Power of Nature to heal, much less are they in the Power of the Physician, her Minister. Therefore *Palliation* is a kind of Healing; for the Physician may be said to heal, when he reduces the Disease to such a State as is possible for it to be reduc'd; nay, it is a great Question whether there be any Diseases of themselves, and in their own Nature, incurable, so as not to be cur'd sometime, especially if the Patient be not prepossess'd with the Incurableness of the Disease, or hamper'd with a false Notion of Preservation from further and worse Inconveniencies, by present Indispositions; or else it may be alledg'd,

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that those incurable Diseases do not belong to the Art of Physic, for those Diseases, concerning which there are no Precepts in the Art of Healing, do not directly belong to that Art, and yet they may be handled, that they may be known whether they are Incurable or no.

The *Subject* of Physic is Humane Body, whether Healthful, or Distemper'd; for as Opticks are chiefly Conversant about visible Objects, so Physic is concern'd about Bodies Curable.

The best Division of Physic is taken from those Principles which immediately constitute the Difference of Physic, these are the *Subject*, *Means*, and *End*; therefore the first Division of Physic is either General or Special; the General Part of Physic is that which lays down those general Precepts which are Necessary for the obtaining of Health, as appears in
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the Institutions; the Special Part shows the Method of obtaining Health in Particulars, to which belongs the Doctrine concerning Particular Diseases, with Historical Accounts of Sick Persons: But because we cannot procure Health to the whole, nor the several Parts, of Man's Body, unless we accurately attend to the *Subject*, *Means*, and *End*, therefore both the General and Special Part of Physick are divided into those which treat of the *Subject*, *Means*, and *End*. Of the *Subject* there are Three Parts, *viz.* *Physiologia*, *Pathologia*, and *Semiotica*, because these lead us to the Knowledge of the *Subject* in a State of Health and Sickness; of the *Means* there are also Three Parts, *viz.* *Dietetica*, *Chirurgica*, and *Pharmaceutica*; and from the *End* arise Two parts, *viz.* *Higieina*, and *Therapentica*.

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The Body of Man is wont to be divided into *Venters*, and *Limbs*; the *Venters* are notable Cavities, in which One or more Noble Bowels are Treasur'd up; these *Venters* are Three, the *Upper*, *Middle*, and *Lower*, or the Head, Breast, and Abdomen, containing the Animal, Vital and Natural, Bowels; the *Limbs* are Members adjoining to the *Venters*, distinct by Joints, and are the Arms and Legs; the Arms are divided into the Shoulder, Cubit, and Hand; the Legs into the Thigh, Tibia, and Foot.

Though all the Parts of Physic, as well those which treat of the *Subject*, *Means*, and *End*, refer to the same End, and all its Precepts are design'd for the doing of something, yet these Two *Hygieina* and *Therapeutica*, in a special Manner, and more Immediately, direct us in the Way and Method of preserving
Health

Health in Human Bodies ; the other Parts more Remotely.

Health is a Disposition of the Parts of Man's Body according to Nature, whereby she is inabled duly to perform those things which are the Consequents of Health, as Actions Sound and Healthful, Qualities well Order'd, Excretion and Retention Agreeable ; which necessarily require a good Temperament, and apt Conformation of the Parts ; the Reverse whereof in the least Degree, strictly taken, may be call'd a Disease ; though the Latitude of Health may so far extend it self, as that every one may be call'd Healthful, so long as none of those things which follow Health do Manifestly and Notably recede from their Natural State.

Humane Actions are perform'd by the Body alone, or by the Body
and

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and Soul together: These are call'd *Animal*, because they do or may proceed from the Soul, *i. e.* the Soul her self is, or may be, Conscious of such Actions as she is the chief Author of them. The Actions which depend wholly on the Nature of the Parts, that is, their good Temperament, and apt Conformation, are Twofold, *Nutrition*, and *Vivification*.

Nutrition is a perpetual Restauration of the Decay'd Natural Substance, by Means of the Arterial Blood, duly prepar'd and driven forth by the Heart into all Parts of the Body by the Arteries. Now every thing whatsoever containing many Particles of the same Kind and Figure, which may be duly Prepared and Concocted in us, so that from those Particles Agglutinated and Join'd to the Parts of the Body, the like Substances to them may be made, is call'd *Aliment*. *Vivifi-*

Vivification is a renewing of the Heat, and Spirits.

The *Alimentary Appetite* conducing to these Purposes, is a troublesome Sensation, arising from a Vellication or Twitching of the Nerves of the Eighth Conjugation Implanted in the Stomac, proceeding from the Defect of Food, and sharpness of the remaining Ferment, by which Means we are forc'd to a Desire of Food, and it is either *Hunger*, or *Thirst*.

Thirst is a desire of Drink, proceeding from the Vellication of the Gullet, Throat, Palate, Tongue, and Adjacent Parts, by reason of sharp saline Particles Irritating these Parts, and the Defect of Spittle to Moisten them, and Dilute the Salts.

Hunger,

Hunger, which is a desire of Food, proceeds from the Reliques of the *Saliva*, and digested Food, remaining in order to a subsequent Dissolution of the succeeding Aliment; which being Acid, and closely adhering to the Wrinkl'd Membrane, especially about the upper Orifice of the Stomac, cause that troublesome Sense, which is convey'd by the foresaid Nerves to the Brain, there exciting a desire of allaying it by a speedy supply.

If these fermentaceous Juices are not only Immoderate in the Stomac, but also by the Default of those that ought to temper them, flowing from the *Liver*, *Spleen*, and *Pancreas*, and other Parts, become too sharp, and are bred too plentifully in the Body, and being convey'd either by the Nerves or Arteries, in so great a Plenty into the

the Stomac, that their Acrimony cannot be sufficiently broke by the Meat and Drink receiv'd, then there is a Preternatural Hunger, which we call a Dog-like Appetite, or the Persons affected therewith oftentimes vomit up the Indigested Food, together with sharp Juices like to the Juice of Limes, and the Acrimonious Humor which remains, by reason of its extraordinary Tenaaciousness still gnawing the Stomac, presently they either grow Hungry, and eat Heartily, or continue in extraordinary Pain.

Boulimos, or Hunger sharpen'd beyond Measure, acknowledges the same, but somewhat gentler, Cause, wherein the Food is quickly Digested and Consum'd.

But if these viscid Fermentaceous Particles are Tougher, and Slower in their Motion, then they require a longer time for their Exaltation,
and

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and the stirring up of Hunger, which chiefly happens when the Acid Spirits are fewer throughout the whole Body, and consequently in the Saliva, and that Mucous Substance which adheres to the inward Coat of the Stomac.

Sometimes there happens a sudden Prostration or Diminution of the Appetite, when too great a quantity of *Bile* ascends into the Stomac (this frequently happens in Bilious Persons, the Yellow *Jaundice*, and divers *Feavers*) and there by mixing it self with the Contents of the Stomac, corrupts not only the remaining Ferment of the Food after the Expulsion of the *Chyle*, but also the descending *Saliva*. The more remote Causes diminishing Hunger are Excessive Rest, Sleep, Cares, Fluxes, &c. in Immoderate Cares, when the Mind is otherwise diverted, many times Hunger is not perceiv'd.

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The most remarkable Instances of a deprav'd Appetite are, *Malacia* in Men, and *Pica* in Women, wherein they covet earnestly Improper Food, and avoid that which is more Proper and Nourishing; this desire of things Absurd and Contrary to the Humane Nature, is a wonderful Affection, very familiar to Virgins, and Women with Child, which arises from the Error of Imagination; and a deprav'd Judgment proceeding from thence, from an Evil Disposition of the Brain, and disorderly Motion of the Spirits; but in no wise from any peculiar Twitching of the natural Appetite of the Stomac, or from default of Humors remaining there; for deprav'd Humors in the Stomac, according to the greater or lesser Intenseness of their gnawing Quality, may indeed abolish or diminish Hunger, but they cannot direct it to any peculiar Object, for

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oft-times they desire Absurd, Foolish, and Unreasonable, Things. That healthful Persons when Hungry desire sometimes Fish, sometimes Flesh, sometimes Fruit, sometimes Roast, sometimes Boyl'd, Meat; this doth not proceed from any peculiar Twitching, or the *Natural* Appetite of the Stomac; but from the *Animal* Appetite, whereby they judge sometimes this, sometimes that, Sort of Food to be more acceptable, and conducive to their Health.

The first Preparation of Food is made in the Mouth, by the Alternate Motion of the Upper and Lower Jaw, breaking, bruising and grinding, the hard solid Substances into smaller Particles; during which grinding Action, they are perpetually and exactly mix'd with the Salival Ferment, which flows thither from the Salival Ducts. Of what Nature and Use this *Saliva* is, may not be Foreign or Impertinent to Inquire. The

The *Saliva* or Spittle is a lightly fermented Liquor, limpid and serous, separated from the Arterial Blood in the *Parotid*, and divers other Glands of the Jaws and Mouth, and by the Salival Ducts, and other Passages squeez'd into the Mouth. For the Arteries, as they convey their Nutritious Juice to all Parts, so also to the Glands, whose more Serous and somewhat Salival Part, fit to Nourish the Glands, by the Mixture of the Animal Spirits, flowing in by the smaller Nerves, being separated from the other Parts, and imbib'd by the said Glands, is there in a special manner Concocted, and somewhat further Prepar'd; and what is Superfluous to the Nourishment of them, Endu'd with a Gentle Acid Quality (which it receives from the Glands) flows to the Mouth by the Salival Ducts.

As in other Divarications of the Arteries, so in these foremention'd

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Glands, the Arteries seem to gape with small Pores towards the Glands, and by peculiar Ducts to deposite this Sort of ferous Liquor. This Opinion is also Confirm'd by exceeding great *Salivations*, whether Spontaneous, in Scorbutic, Hypochondriac, Persons, &c. or that procur'd by Art, by way of Eminency call'd *Ptyalismus*, in which so vast a quantity of *Saliva* is discharg'd, as neither the Nerves, or any other Vessels than the Arteries can afford. If we more strictly examine the Quality of this *Saliva*, it will plainly appear that it is not a Simple, but a Compound, Slippery, Body, less Fluid, and more Thick and Viscid than Water. It hath no Spumosity or Frothiness of it self, but if there be any, it gathers it from the Motion of the Air and Tongue; neither hath it any Savour or Smell of it self, but gains it from the Savour of those things that are receiv'd.

It is no easie Matter exactly to describe the singular Composition of the *Saliva*, which is wonderful, seeing it easily intermixes it self with all manner of Food, Dry, Humid, Oily, Watery, Salt, Sulphureous, &c. and whatever it penetrates, it associates it self with. Nay, out of the Body it mingles it self with, and is associated unto, Quicksilver, when as it is otherwise with other more Simple Heterogeneous Humors, as Water, Spirits, Oil, Salt, which being mix'd with others, separate themselves again; yet with all these the *Saliva* is strictly and intirely united, and moreover, by the means of this *Saliva* all these may not only be mixt, but united; so that it seems to be a kind of Humoral Mercury, or Universal, Internal, *Menstruum*, whereby whatsoever is receiv'd by the Mouth is presently join'd with it, and descends to the Stomac, that there a more

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exact dissolution of all may be perform'd; from all which *Sylvius* judges the *Saliva* to contain in it much Water, little volatile Spirit, less lixivious Salt, with a small quantity of Oil and Acid Spirit well mix'd and temper'd together.

The Uses of the *Saliva* are Manifold and Remarkable; for being mix'd with the Food chew'd in the Mouth; it causes a more easie Deglutition or Swallowing, without which it would be Difficult and Painful, as appears in Feaverish Persons, and others that are Destitute of a sufficient quantity of this Liquor. From the divers Sorts of Food, it draws forth a savoury Quality, which otherwise without such Moisture could not be extracted. It extinguishes Thirst, by moistening the Parts; hence it comes to pass that Spitters or Spawlers do not thirst much. It Lubricates or Moistens the Internal Parts of the Mouth,

Mouth, Jaws, Oesophagus, and Organs of Speech. In the Stomac it promotes the Fermentation of all Aliments receiv'd; nay, it is their Original Ferment, containing in it all that is necessary to Fermentation, *viz.* a kind of Gentle Acidity, well mix'd with a Volatile Spirit, in a greater quantity of Water. This fermenting Vertue of the *Saliva* is manifest from hence, for if you take a piece of white Bread well Chaw'd and Moisten'd with a considerable quantity of the *Saliva*, and mix it with Flower kneaded with warm Water, it will cause it to Ferment, which is very well known and practis'd by the Americans, when they make that Country drink of their *Cassava* Bread.

The Food convey'd by the Mouth and Gullet into the Stomac, partly by the Heat of the Stomac, and adjacent Bowels,

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partly by the saline spirituous Juice deposited there, is dissolv'd, and after the manner of Fermentation concocted and so chang'd into a somewhat White, Well-temper'd, Juice, though as yet mix'd with the grosser, and more useless, Parts of the Aliment. This Fermentative Digestion (which is perform'd without any vehement Motion, upwards or downwards, or any tumultuous Action throughout the whole Cavity of the Stomac) is so Vigorous, as that hereby the most solid Food in a few Hours is not only mollify'd, but in such a manner dissolv'd, as that the Particles thereof being sever'd from their intimate Union, and separated one from another, and mix'd with the Liquor inherent in, or infus'd into, the Stomac, they do unanimously compose a kind of Pultaceous Substance, call'd imperfect *Chyle*. The Milky, or somewhat White, Colour of this *Chyle*, is caus'd by the

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Sulphureous Particles of Food dissolv'd, and by the Acid Ferment of the Stomach intermix'd with the saltish; for all Liquors impregnated with Sulphur, by means of Volatile or Fix'd Salts, turn White, if an Acid be superadded; an instance hereof we have in the Preparation of *Lac Sulphuris*, which immediately grows Milky by the foresaid Means.

The Symptoms of the Stomach affected are, *Apepsy*, or Crudity, *Bradupepsia*, or a Slow and Diminish'd Concoction, and *Dyspepsia*, or deprav'd Concoction. The Two former, *Apepsia* and *Bradupepsia*, differ in Degrees, as the Stomach is more or less affected. The Cause of both these Distempers, is the Defect, Scarcity, or Weakness, of the Stomachic Ferment; or if some other Viscid, Bilious, Humors abate its force; or some Sort of Food offending either in Quantity or Quality,

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lity, hard to be digested, or not taken in due time; or by reason of some Indisposition, or violent Motion of the Body; or by reason of some sudden or immoderate Grief or Sorrow: *Dyspepsia*, or the Corruption of Food in the Stomac, is either *Nidorous* or *Acid*. *Nidorous* Corruption is when the Food contracts a kind of Smell and Taste not unlike to Rotten Eggs, which proceeds from Bilious Humours stagnating about the Stomac, or from Food more than ordinary hot, and liable to such Corruption. *Dyspepsia Acida* is when the more than needful Acidity of the Chyle after its passage through the Stomac is not sufficiently temper'd by the sulphureous *Alkali* of the Bile, either for want of a due quantity of it, or a defect of the natural Composition of that Juice, or too great a quantity of the *Pancreatic* Juice mix'd with the Chyle.

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The Symptoms of Preternatural Excretion of the Mouth and Stomac, are *Ptyalismus*, *Nausea*, *Vomitus*, *Singultus*, *Cholera*, *Ructus*, &c. *Ptyalismus*, or Salivation, is an extraordinary Excretion of *Saliva* from the Mouth, which proceeds from a Redundancy or Superfluity of the Salival Humor in the Body; but chiefly from the too great Laxity or Opening of those Secretory Ducts, or some Extraneous Matter Irritating or Contracting the Parts.

Singultus, or Hiccup, is a Convulsive Motion of the Stomac, but chiefly of the Diaphragm, endeavouring to throw out any thing which by its Acrimony is offensive to the Mouth of the former, call'd *Oesophagus*, which is very sensible; whereupon the Animal Spirits are determin'd in order to throw off the offending Matter by these Alternate and Violent Motions.

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This happens either by *Idiopathy*, or the Affection of the Stomach alone, when the Matter does burthen the Stomach by its Quantity, provokes it by its Quality, or presses it Externally, or by *Sympathy*; when the Stomach doth Sympathize by the Intervention of the Nerves of the Eighth Conjugation, either upon the Inflammation of the Brain and Diaphragm; or Percussion of the former; or Lungs, Liver, Ileum, &c. being inflam'd, and then it is accounted of the worst Sort, according to *Hipp. Aphorisms, Sect. VII.* A Hiccup happening upon violent Diseases, is Mortal.

Vomiting is a violent, convulsive, inverted, Motion of the Stomach and *Oesophagus*, whereby it expels upwards what is contain'd in its Cavity, being irritated thereto either by Acrimony, or Inflammation, or too great a Quantity of Matters contain'd therein. It arises from the Intemperies

peries of the Stomach, or its ill Conformation, as too Straightness; also it may arise from Driness, Wasting, Ulcers, Fear, a Habit or Custom of Vomiting, the Shutting up or Narrowness of the *Pylorus*, or lower Orifice, Obstructions of the Guts, and their inverted Motion, Colic, and Nephritic Pains, Wounds, or Bruises of the Head, and its *Meninges*; moreover, the Matter contain'd in the Stomac may irritate it to Vomit, by its Plenty, or Acrimony, by shutting up the Pores, or stimulating it by some malignant Quality, whether it be Meat, Drink, or Medicine, Worms, Pus, or Bile, also excessive Motion of the Body, and the Imagination of Things Horrible and Dreadful.

Nausea, or an Endeavour to Vomit, proceeds from the same, but gentler, Causes. *Ructus* or Belching is an Excretion of flatulent Humors by the Mouth with Noise, arising from

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from the Contraction of the Stomac, by the Influx of the Spirits, or from its foregoing too great Extension. These Flatulencies take their Original from the Crudities of the Stomac, and also from Acid Juices abounding about the Ventricle, from whence so great a quantity of thick Vapours are bred in the Stomac, which cannot be conveniently distributed thro' the Body, nor dissipated by insensible Transpiration. The Disease call'd *Cholera* is the deprav'd Motion of the Stomac and Guts, whereby the vicious Matter is thrown forth with great force, by both the Orifices of the Stomac upwards and downwards. The Causes of this evil Disease are vicious Humors, especially the Bilious, by their Quantity or Quality, exciting the Excretion of the Stomac and Guts upwards and downwards. The Cholera, which in this Disease breaks forth thus violently upwards and downwards, is not bred in the Stomac, but in
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the Liver, and collected and heap'd up in the Bladder of Gall, the Biliary Pore, and other neighbouring Places, from which at length sharply fermenting, it breaks forth with a notable force into the *Duodenum*, from whence presently it is thrust out with Violence, partly upwards by the Stomac, partly downwards by the rest of the Guts. This sufficiently appears from hence, that the *Cholera* for the most part does invade Persons unexpectedly, ere they are aware, without any previous Indisposition of the Stomac, or any Symptoms of *Bile* collected there; oft-times after a hearty Supper, perceiving no Inconvenience in the Appetite, or digestive Faculty, in the middle of the Night, even in Sleep, they are suddenly surpriz'd herewith. Neither doth Reason persuade us to believe that Nature hath fram'd several different Organs for the Performance of one and the same Office, for she is pleas'd to use one

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one Kind of Medium to obtain any one End ; thus it comes to pass by her Appointment, that *Chyle* is made only in the Stomac, and *Bile* separated only in the Liver.

It may be worth while to explain a little more largely, how, and in what manner, this Ferment is made in the Liver. The venous Blood flowing into the Liver from the Gastric and Meseraic Veins, by the *Vena Porta*, to which, in the Opinion of some Authors, is mix'd a Juice somewhat Sharp, Salt, and Acid, made in the Spleen by the Influx of the Arterial Blood from the Arteries, and the Animal Spirits by the Nerves, which by the Splenic Branch passes into the *Vena Porta*, and so together with the preceding Blood, to which it is mix'd; is carry'd into the Liver ; and by the help of that sharp Juice, the Spirituous, Sulphureous, and also the Saline, Particles which lay hid in the
venous

venous Blood, are dissolv'd, attenuated, and also become somewhat sharp and fermenting; the thinnest Part of which, like to clear Water, being separated from the rest of the thicker Part of the Blood, by the Conglobate Glands, plac'd especially in the Cavous Part of the Liver, is carry'd with the *Chyle* into the *Ductus Chyliferus*, in order to be mix'd and fermented with the Blood. To this very End also some fermentaceous *Saliva* from the Mouth, and also somewhat Salt, Acid, *Lymph* from the Glands of the *Axilla*, *Inguen*, and several others, is carry'd hither, and some of the thinner *Pancreatic* Juice from the Intestines, together with the *Chyle*, passeth into the Milky Vessels: And the sharper fermentaceous Spirits being mix'd with the more thick, and viscid, sulphureous, Juices, (for Sulphur is viscid) and more strongly fermenting by Reason of the visciduity of the Juices in which they

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inhere, cannot enter the Conglobate Glands, nor the Lymphatic Vessels, and by Reason of their sharp Ebullition, they are separated from the Blood, recede together with the Juices in which they inhere, contract Bitterness, and go under the Name of *Bile* ; which *Bile*, by Means of the Acinary Glands, flows down thro' the Biliary Pore, and the Bladder of Gall, by degrees into the Intestines, that in them, together with the *Pancreatic* Juice, it may be mingled with the thicker Mass of Nourishment, concocted in the Stomac, and sent down to the Guts, in order to ferment, and so dissolve and separate the more subtil Parts of the Chyle from the grosser, and attenuate them, that they may be conveniently driven into the narrow Mouths of the Milky Vessels.

For this End the *Bile* slides down by the *Ductus Choledochus* into the
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beginning of the Guts, *viz.* the *Duodenum*, and then together with the *Pancreatic* Juice is mix'd with the *Alimentary* Mass, concocted in the *Stomac*, and sent thither in order to be further fermented. And because in its first entrance it is sharper, and retains more of its strength, and also by Reason of its Mixture with the *Pancreatic* Juice, hath an easie Inclination to ferment, hence in the beginning it makes the greatest Fermentation, from whence the *Milky Juice* of the Mass concocted in the *Ventricle*, and contain'd in the *Intestinum Jejunum*, is quickly separated, and by innumerable *Milky Vessels* (which are implanted there more abundantly than in the rest of the *Intestines*) it is speedily driven forward into the common *Receptacle* of the *Chyle*, so that this Gut is for the most part empty. In the following Guts, by Reason of the Dissipation of the finest fermentaceous Spirits, the Fermentation grows by little and little

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flower, and weaker, and the Separation of the thinner Part of the *Chyle* from the rest of the Mass is more leisurely performed ; and hence it is that those Guts have fewer Milky Vessels. Lastly, the residue of the fermentaceous Matter, after the Dissipation and Separation of the more subtil Balsamic Parts, being mingled with the fæculent Mass of the Aliment in the great Guts, and by its longer stay in them becoming more Acrimonious, stimulates the Guts to the Expulsion of their Excrements ; yet this Irritation doth not cause an immediate Expulsion of the Fæces, until the collected Excrement by its Weight pressing upon the *Sphincter Recti* becomes Troublesome, so that commonly this Excretion is perform'd but once or twice a Day, unless incited by some sharp Medicines, or Humors which irritate the Guts, and so cause more frequent Evacuations.

And

And that the foremention'd Bile may be more sharp, and fermentaceous, it doth not flow presently from the Liver into the Guts by the Biliary Pore, but the finest and thinnest Part of it is carry'd from the Liver by the Biliary Roots into the Bladder of Gall, and remains there some time, that by its stay there it may be better mix'd, and its Nature exalted, (as the Leaven of Bread by its stay in a warm Place acquires a greater Strength) and from hence somewhat fermenting within the Biliary *Cystis*, it falls down into the Guts.

Now according to the Nature of the Blood from which it is separated, such is the *Bile*, either not sharp enough, or too viscid, from whence arise several Distempers, as *Jaundice*, *Obstructions*, and several Irregularities in reference to Excretion ; if too sharp, by too great an Irritation, and Acrimony, it produces *Choleras*,
D 3 *Diarrhæas*

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Diarrhæas, Dysenteries, &c. especially if too sharp *Pancreatic Juice* be mix'd with it in the Guts.

The remainder of the Blood from which this Ferment is separated, is not wholly robb'd of it, retaining still a sufficient Quantity of it in the *Vena Cava* (as appears in an Animal newly Kill'd, if the Liver be presently Cut off from the *Vena Cava*, and the Blood flowing from it reserv'd, and Spirit of Nitre pour'd upon it, presently it turns *Æruginous*, which happens in no other Blood; and so the conceal'd Bilious Ferment mix'd with it is discover'd) to which the *Chyle* prepar'd, and attenuated with *Lymph* from above out of the Subclavian Veins, hastens, or in its Absence, by reason of long Fasting, the Lymphatic Liquor only, mix'd with the Subclavian Blood, and afterwards by its Circulation, is Cofermented with the Blood, and Assimilated to it; but
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ere it arrives to that State, it is driven forth from the right Ventricle into the Lungs, by the Pulmonic Artery, where being impregnated with the Nitrous Salt of the Air in Inspiration, it flows down to the left by the Pulmonic Vein, from whence being again propell'd through the Arteries by subsequent Circulations, obtains the highest Perfection it is capable of, according to the Intention of Nature, for *Vivification* and *Nutrition*.

The residue of the Blood after it hath perform'd this Office of Nutrition, being stripp'd of what it furnish'd the Habit of the Body withal, enters the Small Veins first, then the Greater, and at length returns again to the Heart, that it may be recruited with fresh Supplies; and because in this Circular Motion, and Perpetual Nutrition, much Substance of the Blood is spent by the Heat of the Parts, hence it is

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necessary that new *Chyle*, to be chang'd into Blood, should by little and little be mix'd with the venous Blood, returning to the Heart, to supply the Defect of the former; and thus the Life of Man consists in a continual Nutrition, which failing, the Balsamic Oil must shortly be diminish'd, and at last the Lamp it self be totally extinguish'd.

For as much as in the preceding Discourse we have treated of Ferments, and the manner of Fermentation, it may justly be query'd, whence it is that these Active Particles, which perform such wonderful Operations in Humane Bodies, actuate the Blood, and attenuate it in order to the separation of the Animal Spirits? The Answer is this, they proceed from the Innate *Sulphur* and *Salt* which is in all Aliments. The first Emotion is from *Sulphur*, but the primary and chief Acrimony is from *Salt*. For there
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is nothing we Eat which doth not naturally contain in it *Salt*, though some things more, some less. The *Sulphur* actuates the *Salt*, and brings it to Fusion; and the *Salt* being dissolv'd and attenuated, by its Acrimony corrodes, penetrates, and dissolves, all the Particles of the Aliment, and so disposes or furthers the subtilisation, or drawing forth of the Spirits conceal'd in them; which Operation is call'd Fermentation, without which Man cannot live, and with which being impair'd or vitiated he lives miserably.

And that this Fermentation may proceed more effectually, we add some help to the Natural *Salt* in Aliments, by the Instinct of Nature, *viz.* Marine Salt, which we mix with the things we Eat; and by how much the more the Food is of a hard and solid Substance, and so stands in need of greater Fer-

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Fermentation, in order to its Digestion, by so much the more we love a greater quantity of *Salt* in them; as in the *Flesh* of Beef, Pork, &c. because *Salt* in such Eatables is the Cause of their more easie Digestion, provided the Sulphureous Spirits reducing the *Salt* to Action, do sufficiently abound in the Body, and are strong enough, (as they are in young Men and Bilious Persons) a manifest instance of this we have in Pickled Herrings, which being Eat Raw, do more easily digest in the Stomac than Fresh, tho' never so well dress'd. And further, that the fermentaceous Spirits in the grosser *Salt* may more easily be rous'd up, and their Power reduc'd into Act, (which otherwise in weaker Stomacs, by reason of the Impotency and Scarcity of the Sulphureous Spirits, which are the prime Movers, is not conveniently made) we are wont to use various Artifices, by Fire, and otherwise,

wise, to dissolve in some Measure the firm and fix'd Parts, and subtilize them, that they may be more easily digested in the Stomac; Lastly, for this End also we often use to mix some sharp, spirituous, and sulphureous things for Sauce, with the more solid Food, as Spices, Onions, Seeds, Horseradish Roots, Mustard, Vinegar, Limons, &c. and oft-times Drink after Eating them a Glass of generous Wine; for the sulphureous Spirits mixing themselves with the Salt, powerfully dissolve the thick and viscid Particles, penetrate and exalt them to the highest Degree of Fusion, and Energy or Vigour of Fermentation: Which Chylifying Operation is much help'd, partly by the *Saliva*, which flowing down from the Mouth to the Stomac, is impregnated with a fermentaceous Quality, and partly from the peculiar Ferment which is made from the *Chyle* remaining in the Stomac,

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Stomac, after Concoction and Expulsion of the greatest part into the Guts, and is fix'd in the Pleats and Pores of the inner Coat, and there contracts more sharpness, as is evident in Rennet. And so by the first Fermentation, the more subtil and useful Parts of the Food are separated from the grosser Mass, in the form of thick Cream, and receive the Name of imperfect *Chyle*. From this *Chyle* so impregnated, by a New fermentaceous Preparation receiv'd from the *Bile*, *Pancreatic Juice*, *Lymph*, the Blood is made by subsequent Circulations, which contains in it self the same Saline Particles of the *Chyle*, but more attenuated, more exactly mix'd with the Sulphureous, and consequently Volatile: From the more fix'd Saline Particles of this Blood flowing to the *Spleen*, by the Splenic Artery, and Subacid to the *Pancreas*, and many other Glands, by special Arteries

teries there is separated in the Spleen, and foremention'd Parts, a fermentative Matter, which by Mixture with the venous Blood, concur to the more effectual Separation of the *Bile* in the Liver, and on this manner Ferments proceed from the Food, and by various Concoctions and Mixtures are exalted and diversify'd.

A Sharp, somewhat Salt, Subacid, Juice, (as was before hinted) is separated in the Spleen, from the Arterial Blood, flowing to that Bowel by the Splenic Artery, which being mix'd with the Animal Spirits, does blunt and fix the Sulphureous Volatile Spirit, which was Predominant in them, so that the Salt and fix'd Acid gets the Dominion; which is evident, because the sweet Blood flowing into the Spleen by the Arteries, seems to be there chang'd, and becoming somewhat Acid and Salt, is so driven forward
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from the Spleen by the Splenic Branch to the Liver, as some Authors think; however, it may safely get there by the constant Reflux of the Blood.

For the true Action of the Spleen is nothing else, but by separating a peculiar Ferment Subacid, and somewhat Fix'd, from the Arterial Blood, in order to Check the too great Volatility of the Salt, partly to compose, and be an Ingredient to the Alcalious Ferment of the *Bile*, so necessary both for the Liquefaction and Separation of the Chyle from its Groffer Terrestrious Parts, as is evident to those that make Marble Paper, who when they have by means of a small Brush flirited various Colours upon Gum-Water, the Drops continue distinct upon the Surface, but immediately upon the addition but of a few Drops of Gall, they liquifie, extend themselves, and intermix, by a visible fermenting Commotion. Fur-

Furthermore, in the Substance of the Spleen, which is somewhat Acid, as may easily be perceiv'd by the Taste, in Chawing a piece of it Boyl'd, many Glands are contain'd, consisting of Arteries, Veins, Nerves, and Secretory Ducts, wherein the foresaid Ferment being lodg'd, doth alter the Blood, as hath been formerly express'd. But according to the Opinion of some Authors, the Blood before it enters the Veins, as it were extravasated for some time, remains in little Vaulted Cells surrounding the Spleen, which are Oval, and White; and by thus staying there, gains the foresaid Acidity; as Wine remaining in a Soure Vessel grows more and more Sharp, and *Bile* more and more Acrimonious, being too long detain'd in its *Cystis*; they bring for instance the making of Vinegar, which is after this manner. A Soure Vessel is deposited in a Place somewhat

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what Warm, for the most part in an upper Room of the House, expos'd to the Heat of the Sun-beams, into this Vessel partly empty'd (for Vinegar is always kept in it) a small quantity of Generous Wine (for of Low and Vapid Wine good Vinegar cannot be made) by degrees is pour'd, which being done, in a little time the Sulphureous and Sweet Spirit of the Wine is fixed and suffocated by the Salt, Acid, Particles, predominant in the Vinegar, and the Salt, Acid, Particles that were conceal'd in the Wine, are dissolved and attenuated by the sharp Acidity of the Vinegar, and turn Eager; just so say they, the Sulphureous Spirit of the Arterial Blood, by the odour and mixture of these Acid and Salt Juices, is fix'd, and the Subacid, Saline, Particles get the Dominion in the venous Blood, for the Uses aforementioned.

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Now that the Splenic Ferment may be accounted as a particular Ingredient of the *Bile*, is hinted to us by the following Experiment; for if the Spleen of an Ox, Swine, or other of the Larger Sort of Animals, be cut in pieces, and steep'd in Luke-warm Water and then a little quantity of this Water be mix'd or kneaded with Paste, it will cause it to dilate and ferment as if Yeast, or any other Ferment, were mix'd with it; which Operation may be more easily perform'd, if a small quantity of Vinegar be superadded.

If now this Office of the Spleen be not rightly perform'd, Two Sorts of Evils do arise from hence; the Saline Implanted Matter being either too terrestrial and fix'd, or not sufficiently so; in the former Case it will too much depress the Volatile
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Salt in the Blood, in the latter it will not sufficiently check it.

If the Spleen be weak, either through its own default, or the default of the Food, or any other Cause whatsoever, and the saline Juice too fix'd and terrestrial, by depressing and checking too much the foresaid Volatile Salt of the Blood, it produces Unweildiness, Flatulencies, Hissings, Rumblings, or Croakings of the Guts, and Distention of the Parts, with many other Symptoms, very familiar to *Hypochondriac* Persons, and also by its Viscidity and Terrestreity, stopping the Secretory Ducts, and Capillary Vessels, produces Tumors, Schirrus's, &c. If it be not sufficiently fix'd, the volatile saline Parts not being check'd enough, produce Preternatural Heats, Feaverish Indispositions, want of a due Separation and Distribution of the Chyle.

In like manner almost the *Pancreatic* Juice may be vitiated, by becoming either too Acrimonious, or Vappid; either of which happening, the Separation and Distribution of the Chyle cannot be duly perform'd, from whence Nutrition will be deprav'd, the Chyle becoming more gross, fix'd and unprepar'd, for further Fusion, which breed many Obstructions in the Milky Vessels, the Glands of the Mesentery, leaving too great a Load of Crude and Noxious Humors, from which a Thousand Distempers draw their Origin, even *Atrophy* and Consumption may spring from this Fountain.

But we cannot insist too much upon Distempers that owe their Origin to the Spleen, for by the Disorder of that Powerful and Useful Ferment the Spirits will not be plentifully enough separated, the

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whole Body will become languid, dull, and liable to many Diseases, the Blood becoming too thick, and not spirituous enough, by the Mixture of the Salt, Crude, Viscid, Particles, it doth easily produce Obstructions, and Schirrhous Tumors in the Liver, the Bowels, and Glands, by Coagulating the Humors; and it being not capable of being sufficiently Subtiliz'd by Circulation, and growing thicker than to pass freely through the Narrow Vessels of the Lungs, will stop them, straighten the *Bronchia* by Compression, cause difficult Respiration, with frequent Sighings, &c. the Heart it self will not be able to Circulate it, from whence an intermitting Pulse, Palpitation of the Heart, and perhaps *Poly-pus*, may proceed. Besides, if not Circulating briskly through the Narrow Vessels of the Brain, may spoil the natural Crasis and Constitution of it, cause Pains, Heaviness,

vinefs, and Noise of the Head, hurt the Principal Animal Actions; and seeing from fuch Blood, Animal Spirits, capable to perform their Functions, cannot be extracted, even Imagination, Memory, and Judgment it felf, may be affected, or depraved, and other Cephalic Diftempers may proceed from hence. Befides, the Blood being too much impregnated with this Terreftrial, Auftere, Salt, begets a Scorbutic *Diathefis* or Difpofition, with all its Attendants, the Nervous Parts are fretted by its fharpnefs, the *Perioftium* akes and rages with Pain, the fofter Parts are corroded, oftentimes alfo the Guts grievoufly tormented, and Ulcers arife in the Legs, and other Parts.

The foremention'd Crude, Saline, Particles, Coagulated in the Colder Kidneys, and feparated from the Serum, grow together into fmall Gravel Stones, but feparated in the Joints, and affix'd to the moft fenfible Parts, Corrode them, and

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produce sharp *Arthritic Pains*, and at length heap'd up in a greater quantity, *Tophaceous Sand* or *Gravel*, which is the Matter of the *Knotty Gout*. These and the like Symptoms happen, if the *Fermentaceous Juice* in the *Spleen* be too thick and crude; but if this Juice be too thin, spirituous, and sharp, (which also proceeds from the default of the *Spleen* and *Aliments*) then other Disorders arise in the *Blood*; for it stirs up great Heat, with some kind of *Acrimony*, which in the *Brain*, by reason of its continual Irritation, the swift disorderly Motion of the *Animal Spirits*, produces immoderate Watching, furious *Delirium*, and raving Madness; sticking in the *Joints*, and being *Acrimonious*, causes the wandering *Gout*, and there, by Reason of its sharpness and thinness, dispers'd from one Part, it quickly appears in another, to which some of its Particles do adhere.

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The Spleen being *Schirrhus*, Obstructed or Deprav'd from any other Cause whatsoever, by separating bad Fermentaceous Juice, doth also introduce many other Inconveniencies.

Thus the Office of the Liver and Spleen hath been sufficiently, I hope, treated of, and from what hath been said it appears plainly what necessity there is that the Liver and Spleen should mutually assist each other, what and how great Diseases do arise from both, or either of these Bowels ill affected; how unlike to Truth it is that the Spleen may be expected from the Body of Man, with a *Salvo* to his Life and Health. It doth also appear how falsely the Second Concoction is appointed to be performed in the Liver, Spleen, and Pancreas, seeing it is lodg'd in the Heart and Blood; for the Ferment before-

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mention'd is not made but from the Blood, and the Blood ought to pre-exist, and first be made, since our Birth, in the Heart, before it can be brought to the Liver, Spleen, and Pancreas; Blood is not made but from the *Chyle*, and the *Chyle* ought to pre-exist, and first be made in the Stomac, before it can be brought to the Heart; and as is the *Chyle*, such is the Blood; as is the Blood, such are the several Ferments of the Body. The Method therefore of healing the several Disorders of the Bowels, most agreeable to Reason and Experience, ought primarily to Correct the Errors of the First Concoction, for the Second cannot amend the Errors of the First. The First is made in the Stomac, the Second in the Heart and Blood, the Third in the Bowels before-mention'd.

The Lymphatics are very fine, transparent, small Vessels carrying
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ing the *Lymph*, which is a certain thin, clear, limpid Liquor, to the Chyliferous Vessels and Veins; this Liquor contain'd in them, from its clearness, and chrystalline Quality, is very fitly call'd by the Name of *Lymph*.

The Vessels themselves do consist of a very thin, pellucid Skin, which being broken, if the clear Water contained in them flows forth, they wholly disappear, and vanish, because their Coat is adjoin'd to the Vessels and Membranes lying under, from which by reason of their fineness and clearness they cannot be perceiv'd; which is the Reason that for some Ages past they lay hid from, and escap'd the sharp Sight of, so many Accurate and Sagacious Anatomists, who were indefatigably diligent in Searching and Scrutinizing the wonderful Secrets of Nature, till at last they were happily discover'd and brought to light by Chance, *Anno*
1650,

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1650, 1651, by *Thomas Bartholine*, or *Olaus Rudbek*, who thereupon maintain'd sharp Disputes which ought to have the Honour of the first discovery of them; who perhaps seeking somewhat else in Dead Bodies, neither of them being conscious of one another's Invention, luckily stumbled upon the Knowledge of these Lymphatic Vessels at once. The Discovery of these Vessels hath given a great Light to the unfolding many Abstruse and Occult Mysteries of Nature, and illustrating the obscure Causes of Diseases, for they are almost innumerable in all Parts of the Body; and hence the use of the Glands, dispers'd through the whole Body, but more especially in the inward Parts, is very plainly discover'd; therefore there can be no certain Place assign'd to these Lymphatic Vessels, seeing, as hath been said, they are found in most Parts of the Body, and in the Trunk they do especially accom-
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pany the greater Veins, and may be seen to adhere to them by very small Fibres; many also are conspicuous in the middle *Venter*, but they are innumerable in the lower.

They have many small Valves permitting the Progress of the *Lymph* to the Chyliferous Vessels, and many Veins, but hindring its Return (which the Famous Anatomist *Fr. Ruysch* hath ingeniously Discovered and Demonstrated by Painting these Valves exactly to the Life) they are affix'd to the sides of the Vessels, and mutually opposite to one another, in the Shape of the Moon increasing, but much more numerous and fine than those to be found in the Veins: Which Valves also without opening the Vessels may be clearly perceiv'd; when the *Lymph* contain'd therein is press'd backwards, presently

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ly it is stopp'd everywhere by them.

There hath been a great Scruple concerning the Original of these Lymphatic Vessels, but by the singular Industry of Modern Anatomists these Clouds and Darkness have been in great Measure dispers'd.

Nic. Steno, a very inquisitive Searcher of their Origin, hath pronounc'd from his peculiar Observation, that all the Lymphatic Vessels have a Commerce and Correspondence with the Glands; even as *Malpigi* affirms, all the Lymphatic Vessels, in what Part soever, everywhere arise from the Conglobate Glands (which in the Body are found in a Thousand Places) and also those which proceed from the Liver, because he found them conspicuous in the Cavous Part of the Liver of a Calf, where the Blood Vessels and biliary Pore enter it. *Fr. Ruijsch* reports he hath found as it were, a Chain of them in

a humane Liver, under the Bladder of Gall. A great Number of these Vessels goes forth from the Liver, as may plainly appear to the sight, without a Ligature, but more plainly if a Ligature be made between the Stomac and the Liver, in that Part of the Mesentery which connects the Liver to the Stomac and Guts; by which Ligature the *Vena Porta*, together with the Biliary Duct is comprehended; immediately upon this Trial in a Living Creature, between the Ligature and the Liver, there appears a Tumor or Swelling of these Vessels, which Tumor is much increas'd if the Liver be gently press'd with the Hand; but they do chiefly arise from the Cavous Part of the Liver, in which Part the foremention'd Glands are chiefly plac'd, and some of them pass over the Bladder of Gall. *Fr. Ruysch* hath also observ'd many Lymphatic Vessels to go from the Spleen, not only from
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the Superficies thereof, but also from the inner Part, accompanying the Splenic Artery and Nerves; he declares also that he hath seen Lymphatic Vessels in the Lungs. *Bartholine* hath observ'd the same, and also *Olaus Rudbek*, who hath pourtray'd them exactly. Besides, these Lymphatic Vessels arise from the Conglobate Glands in other Parts, in which Glands a Subacid Juice is either separated from the Blood, or what is so separated is chang'd by the inward Ferment of them, the *Lymph* being manifestly such. These Vessels which proceed from the Glands of the Neck, for the most part Discharge themselves into the *Labyrinth*, or Concourse of these Vessels, plac'd between the Jugular Veins. Those which proceed from the Axillary Glands, descend partly all along the *Cava*, and are carry'd to the *Receptaculum Chyli*, and partly in the Mid-way enter the *Ductus Chyliferus*

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Thoracicus, into which also a Branch is open'd, proceeding from the Branch of the *Oesophagus*. Those which go forth from the Glands of the Groin and Loins being carry'd upwards, and going under the lower Part of the Chyliferous Receptacle, discharge their Lymph into it, it being furnish'd with Valves at its entrance, to hinder the Ingress of the Milky Juice from the Receptacle into these Vessels. And that many Lymphatic Vessels do unload themselves into the Receptacle of the *Chyle*, doth abundantly appear if you press the Receptacle with your Thumb in a Living Creature open'd, and empty it of the *Chyle*, presently it will fill again, and swell by the Influx of the *Lymph*.

But these Vessels do not only open themselves into the Receptacle, but also into many Veins, for so *Nic. Steno* hath observ'd them to open and pour out their Lymph
into

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into the Jugular and other Veins. *Fr. Rujsch* saith from a Ligature and Structure of their Valves, it is manifest that all Lymphatic Vessels which are in the Lungs, do deposit their *Lymph* into the Subclavian, Axillary, and Jugular Veins. Some there are who report they have often seen Conglobate Glands in the Joints, from which no doubt the Original of Lymphatic Vessels doth proceed, which also empty themselves into the Chyliferous Vessels, and divers Veins.

After the Description of these Vessels, we must necessarily inquire, what Sort of Liquor this *Lymph* contain'd in them is; but the Opinions of Learned Men are very different about this Matter. *Bartholine* thinks the *Lymph* is a simple Water, the residue of Nutrition, such as the Elementary, and with him others, who make it serve for the Moistening of the Parts; but they

they assign too mean a Use for this necessary Liquor, seeing such a simple Water may be discuss'd meerly through the Pores alone by the heat of the Parts; neither is there need it should be carry'd inwardly through so many Vessels; besides, simple Water does not congeal, or grow thick into a Gelly, like this when gather'd into a Spoon is wont to do. Others will have it to be a Liquor from the *Halitus* or Vapours of Blood, brought together like Dew, and driven into these Vessels; but such Vapours indeed may grow together like Water or Dew, but never congeal into a Gelly, like the *Lymph*; besides, the Vapours of Blood are abundantly evacuated, partly invisibly by the Pores, and visibly by Sweat, partly by expiration of the Lungs, and also being condens'd, are thrust forth by Urine, Excrements of the Belly, and Tears; so that no Reason

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compels us to believe that those enter these Vessels.

Others will have the *Lymph* to be Animal Spirits, or partaking of the Nature of them, which after they are distributed by the Nerves, are there partly consum'd and dissipated, partly grow together into this Water, which Opinion *Fr. dele Boe Sylvius* favours ; but that this Comment is more Ingenious than true, sufficiently appears from hence, that the Animal Spirits are such thin Vapours, that there are not the like to them in the whole Body, for they most swiftly penetrate the narrowest and invisible Pores of the Nerves and Membranes ; from whence it is most likely to be true, that after they have perform'd their Office of Locomotion and Sensation, they are gradually wasted and dissipated, by reason of their Fineness and Volatility, and not congeal'd into a Liquor, as other compress'd
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Vapours use to be. Besides, if these Spirits in the Parts to which they flow, hotter than the Brain, grow together into such a Liquor, certainly much sooner and easier would they congeal into this Liquor, in the Brain it self, and the Spinal Marrow, by reason of their more remarkable Coldness. For every one knows, that thin *Halitus* or Vapours in Alembicks, or other Cold things, are condens'd into Liquor, and in Chymistry it daily appears; but in those places they are never found condens'd, neither can such a Liquor penetrate through the Nerves. Lastly, the greatest plenty of *Lymph* flows from the Glands of the Liver, which hath so few and small Nerves, that some Anatomists have doubted of its having any. But passing by the differing Opinions of such like Inquisitive Authors, none of the meanest Note, all which they endeavour with various, though weak, Arguments

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ments to maintain, yet scarcely seem to have attain'd the true Nature of this Lymphatic Liquor, or the Necessity of its use. Wherefore we will briefly endeavour to advance what seems more probable to Reason, and begin with its Description, which is as follows.

The *Lymph* is a fermentaceous Liquor, separated from the serous part of the Blood, in the Conglobate Glands, yet not simple, but temper'd with much Essential and Volatile Salt, and also impregnated with some Sulphureous Particles, which by reason of the minuteness of its constituent Parts enters these Vessels, by which it is carry'd partly to the Chyliferous Vessels, partly to many Veins. To the Chyliferous Vessels, that it may render the *Chyle* in them more thin, and more fit for an easie Dilatation in the Heart. To the Veins, that being mix'd with the Venous Blood, now
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less thin, it may prepare it for a brisker Circulation. For with respect to both, the Mixture of the Lymph with them is necessary.

For it plainly appears, that the Chyle of it self is Sweet, and somewhat Fat, whilst the Sulphureous Juice in it, not being sufficiently Volatiliz'd, hath the Dominion; and hence by reason of the viscid and thick Particles, coming alone to the Heart, it is unfit for speedy Assimilation; for as Sulphur Mineral, by reason of the viscid Particles, of it self burns slowly, and by degrees, but being mix'd with Salt Peter, which attenuates them, it flames rapidly when fir'd; so also the like Particles of the Chyle, if somewhat Salt and Thin Parts are not admitted to it, they are but slowly and gradually dilated, and made homogeneous to the Blood; therefore it is necessary, that in its way

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this thin Liquor, endewed with a fermentaceous Quality, should be mix'd with it, which may attenuate its Viscidity, and prepare it for Fermentation, being carry'd into the Blood to be Assimilated to it.

And the Venal Blood, seeing it is divested of a great part of its Spirits, in the Nutrition of the Parts, and its long Journey, it hath need of some mixture of *Lymph* to render its Circulation more facile; but because it is more Spirituous and Digested than the Chyle, hence it requires a less quantity of *Lymph*, which is the Cause that fewer such Vessels are inserted into the Veins than into the Milky Ducts.

But seeing that before we affirm'd the *Lymph* to be separated from the Serous Part of the Blood, it may justly be question'd whether the *Lymph* is Serum, or a Juice different

rent from the true Serum: We answer, The Lymph is not Serum, but a peculiar thin Humor separated from the Serous Part of the Blood.

For in the Serous Part are contain'd, besides the Watery, also plenty of Saline and Cruder Sulphureous Particles, which the different Salt taste in Tears, Sweat, and the fætid Oil, in the distillation of unputrify'd Urine, do sufficiently prove; but the *Lymph* consists of Parts wholly different, as hath been said, which by reason of their great subtilty, together with the thinnest watery Part of the Serum, in which they are separated in the Conglobate Glands from the thicker, easily enter the narrowest Mouths of the Lymphatic Vessels coming from the foremention'd Glands, and by them are carry'd to the Chyliferous Vessels, and divers Veins.

The difference between Serum and Lymph appears plainly from this, that the Lymph being gather'd into a Spoon, not only by the heat of the Fire evaporating the more thin Parts, but also growing Cold of its own accord, turns into the form of a Jelly, which never happens in Serum, either by the heat of the Fire, or without it, because the Salt of *Lymph*, which seems to contain in it somewhat of an Acid, whilst it is naturally contain'd in its Vessels, by reason of its constituent Parts as aforesaid, contracts a great *Leptomery*, and together with the Sulphur, is very fluid, but when it is condens'd by the Cold Air, is not fix'd into Hard and Salt Chrystals, but turns into a Jelly, which also again, by the Heat of the Fire, is resolv'd into a thin Liquor, till the thinner Parts of it are evaporated; but on the contrary, the more
Crude

Crude Particles of the Serum, as appears by Urine upon Evaporation, yield a Sal Armoniac, nay, even common Sea-Salt, besides a plenty of Terrestrial Fæces, and a fætid Sulphur.

Chyle being made in the Stomac, is together with the excrementitious Part of the Food thrust forth by the lower Orifice into the Guts, which are Membranous Pipes, beginning at the *Pylorus*, and ending in *Ano*, they consist inwardly and outwardly of Membranes, between them of Muscular Spiral Fibres, whereby their Motion, which is call'd *Peristaltic*, is perform'd; they are divided into great and small, the small are *Duodenum*, *Jejunum* and *Ileum*, the great *Colon*, the *Cæcum*, and the *Rectum*; Two Sorts of Peculiar Juices are mix'd in the *Duodenum*, with the fermented Mass thrust forth out of the Stomac, viz. the *Gall* by its proper Passage,

Passage, and the *Pancreatic* from its Gland, which cause a separatory Ferment in the Mass aforesaid, whereby the useful Parts of the *Chyle* are freed from the useless excrementitious, are attenuated and brought to a thinner Flux, which is evident if you consider the diversity of the substance of the Food digested, and as yet remaining in the Stomac, from what it appears within the Guts, for the former is Viscid, and Thicker, and diversly Colour'd; this upon its separation less Viscid, much more Fluid, and White, whereby it is rendred fit, by the foresaid contracting Motion of the Guts, to be press'd through their interior Coat into the Milky Vessels, whilst the excrementitious grosser Parts are thrust down gently into the greater Guts, in the last of which they are kept till the time of Excretion.

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This separating Effervescence proceeds from the Alcalino-Sulphureous Quality of the *Bile*, and the Acidity of the *Chyle*, and the *Pancreatic Juice*. Chymistry affords us sufficiently known Instances of this Nature to Illustrate this; but if any of these Juices are deprav'd, as they are often and variously, they produce various Distempers, which are but too evident in Hypochondriacal Cases; many of the Symptoms attending them are justly ascrib'd to the depravation of these Juices.

The Distempers of the Guts are *Lienteria*, *Cæliaca Affectio*, *Diarrhæa*, *Dysenteria*, *Tenesmus*, *Iliaca Affectio*, *Alvus tarda & Suppressa*.

The *Lientery*, is an inconstant Flux of the Belly, whereby the Food receiv'd is excreted, being scarce chang'd at all, so that sometimes
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you may almost discern what Sort of Food hath been taken in, it not remaining in the Stomac till it be concocted, but is immediately thrust down the Guts, with a croaking Distention, Pain, and Squeamishness; which Flux, if it continue long, enervates the Body, by depriving it of its due Nourishment.

The *Celiac Passion* is the Excretion of a crude and imperfectly separated *Chyle*; the Causes of these Distempers are the same, but in different degrees; as a cold and moist *Intemperies* of the Bowels, a partial or total Want or Impotency of the foresaid Ferments, the immoderate Use of Fat, and slippery Meats, Ulcers in the Stomac and Guts, proceeding from sharp Humours, by Reason of ill or venomous Food taken, upon which Acrimony the *Peristaltic* Motion being increas'd, the Guts are continually stimulated, and forc'd to excretion; but the truer Cause of the *Celiac*
Passion

Passion is to be sought for, not so much in the Stomac, as in the Glands of the Mesentery; for tho' the former hath sufficiently perform'd its Office, which is to chylicise, that is, to produce a Milky Juice out of the ingested Food, and transmit it into the Guts, that there it may be secreted, and forc'd into the innumerable Lacteous Vessels, dispers'd over the Mesentery; yet this, besides the Lacteous Vessels, containing abundance of small and soft Glands between its Membranes, (the Number whereof is various, not only in the different Species of Animals, but also in the different Individuals of the same Species; in Man, the fewer they be, they are generally the bigger) hath a great One in the Middle of it, but all do very much contribute towards the attenuating and perfecting the Chyle; the Lacteous Vessels communicating with them, whereby the Chyle, in
order

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order to its greater Perfection, is ting'd with a subacid Ferment, proper to the Glands; these Vessels afterwards meet in the great Gland, and thence by a short, and almost straight, Passage, are carry'd into the Receptacle of the *Chyle*, where they deposit this Liquor. Now if these Glands be obstructed by any Cause whatsoever, or the Liquor contain'd in them, in order to be mix'd with the Lacteous, does contract too great an Acid Acrimony, the *Chyle* stops, and is coagulated like to Curds, the Glands swell by reason of this Copious Influx and Stop, whereby the subsequent finds no admittance, whence comes the Cæliac Flux, accompany'd with Gripings; and if the Distemper continues, *Atrophy* must follow, and consequently Death, for want of Nourishment.

Diarrhæa is a plentiful and frequent voiding of Vicious Humors.
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The Cause is the Plenty and Pravity of the Excrementitious Humours irritating the Guts to Excretion downwards, and oftentimes it happens without Pain ; but if it continue long, it introduces a *Dysentery*, which is a Bloody, Frequent, and Painful, Dejection. The Causes are Sharp, Acrimonious, Humors, not only Irritating, but also Corroding, the Guts ; as also sharp Medicines and Poisons, in which sense 'tis distinguish'd from the painless Evacuation of thin watery Blood, from the internal Hemorrhoidal Veins, call'd the *Hepatic Flux*, and likewise from the Natural discharge of Blood, independent of the Guts, caus'd by its Redundancy in the Body, as after Amputations, Suppression of the Terms, &c. or the Obstruction of the Bowels, hindring its wonted Circulation.

Tenesmus

Tenesmus is a continual and commonly ineffectual Desire of going to Stool, wherein nothing, except some few Bloody, Slimy, Excrements are voided; properly it is a *Dysentery* of the *Intestinum Rectum*, with its Acrimony affecting the Neighbouring *Sphincter*.

Ileus, or the Iliac Passion, is a casting forth of Excrements by Vomit, proceeding from the *Peristaltic* Motion of the Guts inverted; whereby the things contain'd in them are driven forth only upwards; it proceeds from Inflammations, Exulcerations, Circumvolutions, or Twisting together of the Guts into a Knot, extream Costiveness, or Induration of the Excrements, *Enterocoele*, &c. in all which Instances the Spirits contain'd in the Spiral Fibres being either compress'd, or by Inflammation,

tion, &c. too much irritated, turn retrograde.

Immoderate Costiveness is when the Excrements are voided very slowly, or not at all; the Cause is either in the Excrements, when too hard; or in the Guts, when not sufficiently lubricated or compressed; sometimes in the Spirits, when they are defective, as in Apoplexies; sometimes in the Muscles of the Abdomen or Diaphragm; also a frequent Cause of this Distemper is the Obstruction of the *Ductus Choledochus*, or Biliary Passage, which also is commonly the Cause of the Yellow Jaundice, sufficiently known by a foul, ill-favour'd, Colour, from Yellow or Black *Bile*, diffus'd over the whole Body.

The Obstruction of the Milky Vessels (for they ought to receive the *Chyle* from the Guts) and also of
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the Glands plac'd in the Mesentery, which communicate with them, is a frequent Cause of *Atrophy*, or defect of Nourishment, because the *Chyle* is the only *Pabulum* or Food of the Blood, and so the whole support of the Animal Oeconomy; for the Blood, which is the *Pabulum* of Life, and the *Chyle*, which is the *Pabulum* of the Blood, failing, the living Creature can subsist no longer.

The *Chyle*, by the means of the Heart, is mix'd with the Blood, in order to its Sanguification, which is done by an Effervescence, or rather reiterated Fermentation, which differ gradually. The End of Fermentation is not to dissolve or unloose the *Compages* of the mix'd Body, and of Effervescence, to concentrate or unite more closely the Parts thereof, as the Learn'd *Sylvius* thinks, but the End of both is the Exaltation of the

the mixt Body, or a tendency to Perfection, or at least a change into some other thing; and in both, as well Fermentation as Effervescence, there may be some Homogeneous Particles more concentrated, and thoroughly mingled together, and some Heterogeneous separated; but if the End of Effervescence were Concentration, and such an Effervescence were made in the Heart, for certain there would be no separation of the *Animal Spirits, Bile, Seed, Saliva, Pancreatic Juice, Urine, Lymph, &c.* yet all these are so dispos'd by Fermentation in the Blood, that they may be easily sever'd from it, in their proper Places, by their proper Ferments. This Fermentation, in order to Sanguification, consists in these Two Parts. First, The *Chyle* and Blood are blended together, and rarified by reiterated Circulation. Secondly, The Homogeneous Particles of the *Chyle* are assimilated to the Blood,

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and mix'd together, but the Heterogeneous are separated. As to the First, The Blood and Chyle are attenuated by the Animal Fire, or Innate Heat, which from the beginning or first Principles of Life is kindled in the Blood; as is evident when Blood is pour'd into a Vessel very hot, and in the Veins contracted by cold, but dilated by heat, so that the contain'd Blood seems to possess more than double the space it did before; and also the Compages of the Liquor is so open'd, that the Particles of Spirit, Salt, and Sulphur, being dissolv'd, and brought into motion, as it were gently kindled, communicate Heat to the whole Body. Some think this Solution to be made by the Nitro-sulphureous Ferment, communicated to the Blood by the Air, or other Fermentaceous Reliques, remaining within the Pores of the Heart after every single Fermentation there;

there ; for, say they, the Heart cannot in the *Systole* be so totally compress'd but that some of the fermented Blood will remain there, in order to coferment with the next succeeding in the *Diastole*, which they endeavour to illustrate by the Ferment of Bread, the pressing of Grapes, and Yeast. But if we consider the Matter more accurately, that Ferment doth scarcely, or not at all, differ from the Animal Fire contain'd in the Blood. In Fishes, and bloodless Animals, it is more properly call'd Ferment, because in their Body and Blood the Heat or actual Fire is not very considerable ; whence it is they are destitute of Lungs, and have only one Ventricle of the Heart, notwithstanding their Blood is moved and circulated, which is rather by the Benefit of a Ferment, than Fire. But in Man, and other sanguine Animals, in whom the contrary to all these happens, it is

more properly call'd Fire. Besides this, that Solution is much assisted by the proper disposition of the Blood and Chyle to grow hot, as may be observ'd in moist Hay, or Turfs, and other things which of their own accord grow hot, and are set on fire.

This Disposition arises from hence, that there are beforehand in the Blood and Chyle Spirituous, Sulphureous, and Saline Particles, partly from the Food fermented before it is receiv'd into the Body, as in Bread, Ale, Wine; partly in the Stomac, Guts, Mesentery, Spleen, and in other Places, concocted and fermented, and so the Disposition of the Blood and Chyle conduces much to a good Fermentation. And as in all Fermentations some Heterogeneity of Parts is always requisite, just so it happens here; for though the Spirituous, Saline, and Sulphureous, Particles are contain'd
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in both the Blood and Chyle, yet they are in a different State in either. In the *Chyle* the Spirits are Cruder, the Salt more Acid, the Sulphur not so intimately Dissolv'd; but in the Blood the Spirit is Expanded, the Salt Volatiliz'd, and the Sulphur Subtiliz'd. For if the *Chyle*, by means of the Blood, be duly Volatiliz'd, and brought to Maturity, after the manner of generous Wine, presently the Sulphureous and Spirituous Particles being thus Dissolv'd, diffuse an equal and moderate Heat throughout the whole Body; but if they, by reason of Crudity, and defect of Concoction, remain Crude and Waterish, the Sulphureous and Spirituous Parts not being sufficiently dissolv'd, Paleness, cold Distempers, difficult Respiration, Obstructions, and other Symptoms, appear of ill fermented Blood, as is observable in Cachectic Persons, the Green-Sickness; or if the Sulphureous Par-

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ticles do abound beyond Measure, and are dissolv'd more than is meet, there arises immoderate Heat, feverish Effervescencies, such as are in acute Feavers.

As to the Second, the Particles of the *Chyle* being dissolved and attenuated, those which are Homogeneous, or of the same Nature, are assimilated to the Blood, and both so mix'd together, that as to the Colour, and other Qualities, they are very agreeable; doubtless the spirituous Parts because they are very fine, and greatly mov'd, continually endeavour to display themselves, and fly away; but being irretiated by the other thicker Particles, are detain'd in their flight, and being thus detain'd, they exagitate and rouse up the thicker Particles, by which they are intangl'd, and subtilize them, or make them finer; they volatize the Salt, which otherwise is some-

somewhat fix'd, by adhering to it, and briskly acting upon it; they dissolve the Sulphur, by means of the Volatile Salt, which otherwise is too compact (as is evident in Chymistry) and scarcely miscible with the rest; in the mean while, from the mutual re-action of the Salt and Sulphur, plentiful Effluvia, or Vapours of Heat, do proceed, which being retain'd in the Blood, and every way diffus'd, increase the Motion of Fermentation; and after this manner all being united, compound what we call Blood, by which I mean the distinct red *Globuli*, floating in the Serum; which whilst it is contain'd in its Vessels, is in perpetual Motion throughout all its Parts, having not only the Intrinsical one of Fermentation, as in Wine, but another of Circulation too; and also continually works upon the new Chyle, perpetually flowing and infus'd into it, and assimilates
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its Homogeneous, and separates its Heterogeneous, Parts; and that is done so long as the Blood retains its natural Temper and Motion; but as soon as it departs from it, the Blood becomes one while Bilious, another while Pituitous, and at another time Melancholy; it doth not duly assimilate the Chyle brought to it, but either leaves it for the most part Crude, or perverts it into an Acid, Nitrous, or other Heterogeneous, Nature, where-with when the Blood is too much impregnated, presently Fermentation is depraved, and Paroxisms, as in Intermitting Feavers, are excited; or if something Heterogeneous, as suppose Milk, Whey, or Purulent Matter, flows into the Blood, which neither can be mix'd with, nor chang'd into Blood, then the spirituous Particles being more vehemently excited, make a greater *Impetus* or Force, and raise the natural into a preternatural Fer-

Fermentation, as in Milky Feavers in Women with Child, *Catarrhus*, *Arthritic*, *Asthmatic*, *Hydropical*, *Erysipelatous* Cases *Empyema's* and *Slow Feavers*.

The Red Colour, which is in the Assimilated *Chyle*, arises from the Dissolution of the Sulphureous Particles; for Sulphur easily bestows a Red Colour on every *Menstruum* in which it is dissolv'd, e. g. Oil of Turpentine, Linseed, alcalious and volatile Salts, &c.

So also when the Sulphur is not sufficiently dissolv'd, the Blood becomes Waterish and Pale, scarcely tinging white Linen Cloth with Redness, as appears in the *Cachexy*, *Morbus Virgineus*, or Green-Sickness; for whilst the Blood is in this State, the Sulphur, which ought to have been intimately united with, and actuated, is thrown off as Heterogeneous, and Immiscible with that Liquor. But

But when this Fermentation is natural, and the Blood by that Means sufficiently attenuated, there are some Heterogeneous Particles as it were separated from it, which cannot in the Vessels be united to it; and they are Two fold, either Subtile like to a *Gas*, or kind of Subtile Exhalation in fermenting Wines, and such Sort of Liquors which force their Way outwards insensibly; or they are thicker, which being not recombiscible with it, must be separated from it, lest they should, being retain'd, cause undue preternatural Fermentations; and they are Two fold, either useful to the Body, and separated from it in their proper Glands, as the *Bile*, *Saliva*, and *Pancreatic Juice*, *Lymph*, &c. or useles, as *Urine*, &c.

The Symptoms of Nutrition abolish'd or impair'd, are chiefly
Atrophy

Atrophy and *Cachexy*, to which belong *Scabies*, *Lepra*, *Elephantiasis*, and other cutaneous Affects. *Atrophy* is a Defect of due Nourishment, whereby the Body is by degrees extenuated, diminished, and grows dry. The Cause of this is the Constitution of the Parts, especially the Hot and Dry, by reason of Acrimony, as appears in Hectic, and other Slow Feavers, or too great a Laxity or Straightness of the Parts to be nourish'd, and Vessels that carry it; or it happens by Pravity of the Aliment, being corrupted by *Pus*, communicated to it either from Ulcers in the Lungs, or *Apostems* in other Parts of the Body. *Atrophy* is either total or partial; that which arises from the Exulceration of the Lungs, or Parts in the *Thorax*, is call'd *Phthisis*.

Cachexy is the Default of Nourishment, whereby the whole Body becomes unweildy, washy, accompany'd with flabby Swellings. The

The *Itch*, *Leprosie*, *Elephantiasis*, with other such like cutaneous Distempers, are no doubt confirm'd and encreas'd by an ill Nourishment, Tart, and too Salt, or accompany'd with other Malignity, but are most commonly got and propagated by Infection.

The Default of *Vivification* is Remarkable in *Lipothymia*, Fainting, or Swooning, which is either a partial or total Deprivation of Strength, proceeding from the Defect of the regular Influx of the Animal Spirits, and consequently of Heat, for want of Circulation. The total is call'd *Syncope*, which is a sudden and total failure of Strength, by reason of the interrupted Circulation of the Blood, which may proceed from some Defect, either in the Brain, as in great Pains, and the Imagination being too much shock'd by Fear, or any other too violent Passion, as is evident

dent in an extream Lassitude ; or the Heart, when obstructed with a *Poly-pus*, or the Blood being either too Viscid, Deficient, or Impoverish'd.

Respiration is greatly Serviceable to Sanguification, which is an alternate Contraction and Dilatation of the *Thorax* or Breast, whereby the Air is one while driven into the Lungs for the Inspiration of the Aerial Nitre, another while is driven out with the Fuliginous Vapours of the Blood. The Lungs being a Congeries, or heap of small Vesicles or Bladders join'd together by little Membranes, and moving Fibres, require to be dilated before the Blood can have Admission into the Vessels covering them ; which Dilatation is perform'd by the Inspiration of Air, and Motion of the Diaphragm, together with the Subclavian and Intercostal Muscles, enlarging the Cavity of the Breast, upon which the Air is impell'd, and distends

distends them ; the Lungs being thus distended, the Blood empties it self into them, and by Vertue of the Aerial Salt inspir'd, and the Fuliginous Vapours expir'd, the Blood is dissolv'd and rarefy'd to promote the Circulation, Fermentation, and even the Commixtion of the Blood, as some Moderns think, by Compression of the sanguiferous Vessels upon the distention of the Vesicles. Respiration is so necessary, that it is impossible for a living Creature not to breath, and for one breathing, not to live ; yet it is impair'd in *Apnæa*, when as to Sense, and for a small time it is abolish'd ; or it is diminish'd and deprav'd in the *Asthma*, *Orthopnæa*, *Dyspnæa*, *Plurisie*, *Præfocatio Uterina*, *Quinsie*, &c.

Dyspnæa, *Asthma*, *Orthopnæa*, differ among themselves only in certain Degrees. The first is a shortness or difficulty of Breathing, the second difficult and frequent Breathing,

ing; the third, which is the highest Degree, is a Difficulty of Breathing, when one cannot fetch his Breath but being in a Posture upright. The Causes of these Symptoms are the Defect of the Animal Spirits, moving the Muscles of the Breast and Diaphragm; or a Convulsive Affection of these Parts, Obstruction of the Vesicles, by a Viscid Matter, whereby the Access of Air is hinder'd, a Tumor, Ulcer, or a Wound in the Lungs, the ill Conformation of the Breast, Inflammation of the Pleura, or its Repletion with Pus or Serum, as happens in the Dropsie of that Part; or when the Abdomen being fill'd with Water hinders the Depression of the Diaphragm, or when the Person being Liver-grown, that hinders the Constriction of it.

The *Pleurisie* is an Inflammation of the Membrane, from which this Distemper derives its Name, accom-

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pany'd with a pungent, pricking Pain of the Side, and a continual Feaver; if the Membrane that invests the Lungs be inflam'd, it is commonly call'd *Peripneumonia*.

The immediate Cause of all Inflammations, is a partial Extravasation, or Stagnation of the Blood, producing Pain by the Distention and Rupture of the Capillary Vessels.

Præfocatio Uterina, or Fits of the Mother, proceeds from an irregular convulsive Influx of the Animal Spirits into the adjacent Parts, the Diaphragm depressing the Bowels, forcing them sometimes into an outwardly visible Tumor, by which the Respiration must needs be affected, because of this inordinate Motion; which comes either from an ill Constitution of the Brain, sudden Passions, or violent Desires, especially the ill, acrimonious Humours lodg'd in any Parts, in or about the Womb,

Womb, occasion this Kind of Irritation ; this Distemper is accompany'd with Fainting and Swooning, total Want of Respiration for a while sometimes, and the Loss of Sense and voluntary Motion, sometimes joined with Convulsions of the Limbs, and other grievous Symptoms, very Troublesome and Discouraging to the Fair Sex. An extraordinary Difficulty of Breathing happens also in the *Quinsy*, proceeding from an Inflammation of the Throat, inwardly chiefly, tho' sometimes it reaches the outward Parts too, as is evident by Tumor, and Collection of Pus, in both of them.

The true Office of the Liver, Spleen and *Pancreas*, agree in one and the same End, and assist one another in actuating the Ferment of the Blood and *Chyle*, in the making of which Ferment the Office of these Three Bowels ought necessarily

to concur, seeing the one without the other cannot perfect this great Work; for it is necessary that this Ferment should be mix'd with the *Chyle* and venous Blood, that thereby the Subtile Part that lay conceal'd in them may be attenuated, and stirred up, and so the whole Mass become more fit for *Hæmatosis* and *Nutrition*: That the true Office of the *Liver*, *Spleen* and *Pancreas*, is to make this Ferment, appears from hence, that when these Bowels are in good Health, and perform their Duty conveniently, the whole Mass of Blood is better, and more spirituous, and hence the Body is lively, active, and performs all its Natural and Animal Actions more vigorously; but on the contrary, where these Bowels are Indispos'd, and out of Order, innumerable Distempers arise from the *Chyle* and Blood ill fermented. If the *Liver* be Indispos'd, from what Cause soever, and consequently does not separate its Salino-Sulphureous

ous Ferment, we must not afterwards expect a good Fermentation anywhere, the *Chyle* will not be sufficiently separated, nor attenuated, consequently it will be ill prepar'd, in order to its Assimilation with the Blood; the venous Blood will remain as it was, Crude and Viscid, wanting the active Particles communicated by that Ferment, in order to its further Exaltation, or else it will easily quit its Serum, and so cause an *Anasarca*. If this Serum be collected in the Abdomen, it causes the *Ascitis*, or Dropsie of the Belly, accompany'd with an extraordinary Thirst, the Moisture necessary to the Constitution of the lubricating Juices, as the *Saliva*, &c. being uselessly diverted. Those Waters, if they are collected in the Abdomen, either from the foremention'd Cause, or by reason of the Rupture of the Lacteous or Lymphatic Vessels, or both, then they cause the *Ascitis*. But if the Bowels be ex-

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treably extended, so as to blow up, or force the Abdomen to the utmost Tightness, tho' without any Collection of Water, it is call'd *Tympany*, which is an apparent Inflation of the lower Belly distended, and resounding at the Stroke of the Hand like the beating of a Drum. As to partial Dropsies of the Scrotum and Head, call'd *Hydrocele*, and *Hydrocephalos*, they may easily be deduc'd from the Analogy of what hath been already said.

The Office of the Kidneys is by a peculiar Manner of Fermentation, to separate the superfluous Serum from the Blood, brought to them by the emulgent Arteries, which Serum flowing into the *Pelvis*, or Basin, by the Ureters, descends to the Bladder of Urine, in its proper Time to be sent forth by the Urinary Passage.

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The Symptoms of this Excretion of Urine vitiated, are *Ischuria*, *Stranguria*, *Urinæ Incontinentia*, *Dysuria*, *Diabetes*, &c.

Ischuria is such a Suppression of Urine contain'd in the Bladder, whereby nothing, or very little, of it can be voided, this doth arise from a peculiar Palsie, or Relaxation of the Muscular Fibres of the Bladder; which may proceed from too great a Quantity of *Narcotics* taken, or the Influx of the Animal Spirits being stopp'd by the Obstruction of the Nerves, a Contusion of the Part, &c. by which Means the Stimulation of Urine is either not perceiv'd, or the Fibres being too much extended, cannot contract themselves, as when the Urine is too long retain'd, or from some Hurt of the *Sphincter*, or Erosion of it, by an Ulcer, or from the Urinary Passage stopp'd, with Caruncles, grumous

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Blood, or Stones, or compress'd with Swelling. There is an *Ischuria*, improperly so call'd, when none, or very little, Urine slides down into the Bladder, either by reason of the Intemperies of the Kidneys, or Obstruction of the Urinary Pipes and *Ureters*, by Stone, Gravel, &c. or when the Blood is so Viscid, that none, or very little, Serum can be separated from it, or is carry'd off to other Parts, or by other Ways, either thro' the Belly, or by Sweat, or lodg'd in the former, or in the Habit of the Body, as happens in the *Ascitis*, and *Anasarca*.

Dysuria is a painful, frequent making of Water, generally in small Quantities. The Cause consists in too great sharpness of Urine, or in the Urinary Passage being excoriated, or exulcerated, or partially obstructed, by a mucous Matter, as in the Ulcer of the Bladder, or by a Stone,

Stranguria

Stranguria is when Urine is made by Drops, which may proceed from too great an Acrimony of the Urine, or the *Sphincter* being distended does not perform the Office of a perfect Closure, as it ought to do, and so suffers it to dribble thro' the *Urethra*, as fast as it comes in by the *Ureters*.

Incontinentia Urinae is an involuntary Efflux of Urine, which proceeds from the Palsie or Relaxation of the *Sphincter*, from a Blow, Fall, or Wound.

Diabetes is an immoderate Flux of Urine, coming from the Colliquation of the Blood, and the Nutritious Balsamic Juice obtunding the Urinous Scent, as appears by the sweetness, both in reference to the Taste and Smell of the Water, voided in greater Quantities than Moisture hath been supply'd to

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to the Body, accompany'd with a Feaver, great Thirst, and wasting of the Parts, &c. The immediate Cause is the Laxity of the Urinary Pipes, together with an Acrimony in the Blood, Colliquating the Nutritious Balsamic Juice, either ready to be assimilated to the Parts, in order to Nutrition, or already lodg'd there, and abraded, both by the violent Motion of the Blood, and the Acrimony contain'd therein.

The Symptoms of the Animal Actions being hurt, are either Soporosis Affections, which cause a preternatural and deep Sleep, with a sudden and continu'd privation of Animal Actions, yet with Respiration; or those that cause Convulsive Motions in the Brain, or the rest of the Parts of the Body.

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The Soporouse Affections proceed either from Blood too much rarify'd, compressing the Nerves in the Brain, or any other Cause obstructing them, whereby a sufficient Influx of Animal Spirits is hindred to perform their Functions proper to Persons that are awake, and are either *Coma*, *Lethargus*, *Carus*, and perhaps *Apoplexy*.

Coma is a profound Sleep, from which the Person affected being rous'd up, opens his Eyes, answers to Questions propos'd, but presently relapses into the same again.

Lethargy is a profound Sleep, like to the *Coma*, but accompany'd with a Feaver, and *Delirium*.

Carus is a profound Sleep, without a Feaver, wherein the affected Person being rous'd, scarcely opens his

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his Eyes, makes no answer to Questions, but being pinch'd, is sensible thereof, Respiration remains free.

Apoplexy is a profound Sleep, wherein the Apoplectic Person, tho' violently mov'd, shak'd, pinch'd and prick'd, yet discovers no Signs of Sense or Motion; 'tis accompany'd with a *Stertor*, and Difficulty of Respiration, from whence the Greatness of the Distemper is to be judg'd of. The Causes of it are much the same with the former, but oft-times happens from the Circulation of the Blood being stopp'd by any Cause whatsoever, either Internal or External.

The contrary Distemper to the Soporosis, is inordinate Watching, which proceeds from too great a Plenty and Heat of the Spirits. From these Causes producing profound Sleep, and extraordinary Watching, concurring together amongst themselves, arises the *Coma Vigilans*, which is a great Inclination, without a Power, to Sleep.

Epilepsia.

Epilepsia, or the Falling-Sickness, is an alternate Concussion of several Members of the Body, attended for the most part with a Cessation of Sense. In the highest Degree, which is most Common, the Body is thrown upon the Ground, Sense and Reason are wholly abolish'd, the Thumbs closely contracted within the Palm of the Hand, the Feet, tremble, the Arms are toss'd about, the Teeth gnash one against another, and bite the Tongue and Lips, Froth is cast out of the Mouth, and the whole Body is successively elevated and depress'd, and when the Symptoms abate, the Epileptic Person slumbers and groans, when he comes to himself, complains of a Heaviness of his Head, Weariness of his Joints, but remembers nothing of what is pass'd. I look upon it to be a particular Sort of a Convulsion, peculiarly affecting not only the Limbs, but likewise the Organs of Respiration, and the Brain
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it self, as is evident by the Description.

The rest of the Disorders of the Animal Spirits, hurting the Animal Functions, depend upon the Qualities of the Animal Spirits in the Brain ; for the Spirits being separated from the Blood, are consequently either Copious or Deficient, more or less apt to be Mov'd, Volatile or Acrimonious, according as the Blood is ; and how the Blood comes to be deprav'd, hath been sufficiently shown.

Doubtless we carry about with us in our Bodies the Seeds of a Thousand Diseases, and are liable to the mischievous Arrows of Death a Thousand several Ways, every several Hour ; for as many Senses, as many Members, nay, as many Pores as there are in our Bodies, so many Windows there are open to let in these Fatal Messengers. And by the Mediation of Air, which is so absolutely

lutely Necessary to Respiration, that we cannot live without it, sometimes certain pestiferous *Miasms* or Impurities of a subtile and acrimonious Nature, intermixing themselves with the Animal Spirits, and the Blood by Inspiration, quickly disperse their poisonous Tincture throughout the whole Mass, so that not only the Brain, Nerves, and Vascular Substance of the Lungs, but the several Juices of the Body, are polluted with this contagious Quality, and thus they become the occasional Causes of a morbid Constitution. Nevertheless the Original Cause and Root, if not of all, yet of most, Distempers is inherent in the Stomac, and first Passages ; for the Food convey'd thither being not sufficiently elaborated, and in due time chang'd into good and laudable *Chyle*, remains a crude, indigested, Heap, unprofitable, and unfit for the Nourishment of the several Parts of the Body ; nay, tho' the generous Food,
which

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which naturally is dispos'd to breed good *Chyle*, Blood, and Juices, and preserve the Body in a State of Health, be then receiv'd, it doth not nourish the Parts, but further promotes and encreases Distempers; for that the Stomac by reason of the Paucity or Scarcity of good Spirits for Motion, grows so Weak that it cannot, according to its natural Vigour, assist to the Comminution of the Food, also by reason of Default of the Ferment it distributes vicious *Chyle*, and as is the *Chyle*, such is the Blood, as is the Blood, such are the Spirits, the *Lymph*, and the rest of the Ferments, such also is the Disposition of the Animal Oeconomy, and consequently the new receiv'd Food affords fresh Supplies of ill Ferment, and encrease of Distempers, so *Hipp.* teaches, *Aph.* 10. Sect. 2. the more impure Bodies are nourish'd, the more they are hurt:

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FEAVERS.

There is nothing more Conducive to a right Method of healing Diseases, than a true understanding the Nature of Feavers, because a Feaver in the usual Signification doth accompany most Diseases, but in the general Acceptation of the Word, and the extensive Latitude of the following Description, it is inseparably united perhaps to all, according to the Old Proverb, *What, will you die without a Feaver?*

It is not worth while to spend time about abstruse Matters, and such^{as} are meerly *Polemical*; leaving therefore the canvassing of those Points to the Ingenious *Virtuoso's*, our Purpose shall be only in a kind

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and courteous manner to propose a few things concerning Feavers worthy Observation, not more probable to us, than beneficial to the most useful Part of Physick, which is Practice.

A *Feaver* then is a vicious Fermentation of the Blood and Humors, whereby their Natural *Crisis* is more or less disturb'd.

There is a Natural as well as a Preternatural Fermentation. The most remarkable Changes that happen to our Bodies are chiefly owing to Fermentation; by Virtue hereof Nature her self performs the Separation of the good from the bad Parts of the *Chyle*, and transforms them into the Colour and Consistence of Blood, so that from the Consideration of this Fundamental Change it seems indispensibly necessary, for the preservation of a good Temperament, the Life of the Whole, and

and of every Part, to establish a Natural Fermentation; which is an Intestine Motion of the Minute Particles, arising from the Activity of different kinds of Salts and Sulphur, mutually engaging one another, in a gentle, moderate Manner, without any great Hurry, so as that at last they unanimously agree to receive into their Society the Homogeneous Parts, and separate the Heterogeneous, by a timely Precipitation or Separation: But the Preternatural Fermentation is when a due proportion of those Fermentaceous Particles is wanting, or something Extraneous from the Air, or Preternatural Humors in the Body, be blended with them, which evidently, by introducing a more violent Motion, (the Particles to be assimilated being Heterogeneous) produces what we call a Preternatural or Febrile Commotion.

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This Preternatural Fermentation of the Blood will cause an alteration of the Pulse, a Chilness, Shivering, or Shaking, (which differ gradually) excessive Heat, and a change of Urine, in Colour or Consistence, and such like Febrile Signs; from whence it may not be impertinent to observe, that deprav'd Fermentation is essential to a Fever, but excessive Heat, which usually attends the Paroxysm, is only one of the many Symptoms or Effects which proceed from the struggling together of these contrary Salts, &c. in the Mass of Blood; for this immoderate Heat is not to be found in some Sort of Fevers, where Shivering, Cold, and Rigour, seize the Patient, without any Burning, or manifest Heat, before or after the Fit.

Some Fevers are occasion'd by the sudden stopping of the Pores, and shutting up the Sulphureous
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and Saline Particles, which naturally ought to be sent forth by insensible Transpiration; but being resorb'd into the Blood, ferment the whole Mass. Others are caus'd by Malignant *Effluvia*, proceeding from Contagion, extravasated Blood, Ulcers, Inflammations, or such like; but for the most Part Continual and Intermitting Feavers derive their Original from a Collection of indigested Food in the Stomac, which by degrees degenerates into a Viscous, Glutinous Substance, impregnated with an Acrimonious Salt.

In most Feavers the Blood is primarily affected, and the Spirits influenc'd by the Vicious Steams which arise from thence; though sometimes the Spirits are first assaulted, and the Blood suffers by reason of their Impurity, and violent Commotion. In a Word, whatsoever disturbs the Natural Proportion of the Salts, &c. cau-

Is a Preternatural Fermentation, from whence this Conclusion must needs be very natural, that saline Medicines, &c. fitly adapted by an observing Physician, in order to restore the due Proportion, and alter the exorbitant Qualities of the Internal Salt and Sulphur, which produce this Preternatural Fermentation, are the most likely utterly to destroy the Febrile Ferment, and consequently to reduce the Disproportion'd Mixture of the saline Particles, &c. to a due Temperament, than any other Medicines whatsoever, because they act upon, and alter not only those of their own kind, but the Sulphureous and Spirituous also.

With Submission therefore to the Judgment of the Impartial Reader, I humbly conceive we need not be Confounded with the manifold Divisions or Subdivisions of Feavers; the nice Consideration of which may afford
diverting

diverting Entertainment to Curious Philosophers, whose Heads are that way inclin'd, but content our selves (without any Prejudice, we hope, to a Regular and Successful Practice of Physic) in observing the difference between Continual and Intermitting, Benign and Malign Feavers.

Continual Feavers from the first Moment of their Invasion hold out to the End, and if they do admit of any Remission, yet continue their Course without Intermission. But Intermitting Feavers being caus'd by an interrupted Fermentation of the Blood and Juices, disappear during the whole time of the lucid Intervals, and then return again. Ordinarily they invade the Patient, with several Sorts of Pains, and weariness of the Joints, universal Anxiety and Unquietness, Chilness, Shivering, and Shaking,

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which continue during the Cold Fit, by reason of the sudden surprize and prevalency of the Acid Salts; but after some time, the Volatile Salt in the Blood getting the upper Hand, the Effervescence continues till its contrary be either wholly altered or precipitated, and so the contrary is compelled to retire, either by Urine or Secretion through the Pores of the Skin by Sweat, when the Paroxism ends.

If mild Symptoms attend the Feaver, it is call'd *Benign*, but if more dismal Effects appear, it is term'd *Malign*; so that the difference between them seems chiefly to consist in Degrees, for we find sometimes the One degenerates into the Other. Malignant Feavers discover themselves by a sudden Prostration of the Strength, dejection of the Appetite, immoderate Watchings, unquenchable Thirst, with roughness,

ness, driness or blackness of the Tongue, strange kind of uneasiness in most Parts of the Body, frequently ushering in Delirium, Convulsions, and such like Fatal Effects; being caus'd by a sharp, volatile, corrosive Acid, which dissolves the Texture of the Blood, disposes it to Putrefaction, irritates the Nervous Parts, and lastly, destroys the Animal Spirits.

In order to a successful Practice, as it is necessary to prescribe good Remedies, so it is convenient to premise this seasonable Caution, lest any thing should be interpreted in the worst Sense. My purpose therefore is (for so I would be understood) not to obtrude any thing of my own upon others in a Magisterial way, but kindly to propose a Specimen of some Generous Medicines, justly Entitled to a preference before others, because they are more Universal, and answer more Indications than others,
willingly

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willingly submitting to any Alterations, Additions, Subtractions, or Amendments, according to the Emergency of Occasions, and the particular Intention of the Physician, whose Province it is to take all the Care imaginable that Nature be well appointed to meet her approaching Adversary, and timely prevent the Malignity of the Morbific Matter.

Altho' it may not be absolutely necessary in the more Benign Feavers, yet (if the particular Constitution or Aversion of the Patient hindered not) my constant Practice, for many Years past, in order to prevent Malignity, hath been to mix with every Dose of the *Alterative* or *Absorbent* Pouders, which I shall mention, a Grain or more of Camphir, whose Salino-sulphureous Substance is intirely Subtile, and so extremely Volatile, as to render it the most admirable of all Vegetables, capable of penetrating

penetrating through the whole Body sooner than any Native or Exotic Drug whatsoever, which the Three Kingdoms afford.

In the beginning and progress of Malignant Feavers, when the Febrile Ferment continually increases, even so far as to become Contagious ; nay, when it is exalted to the highest Pitch of Malignity, becomes Pestilent, and partakes of the very Nature of the Plague it self, even then we have no better Alexipharmac Cordials than those compounded with Camphir, which quickly affects the Blood, rectifies the Spirits, corrects their Disorder, restores them to, and preserves them in, their natural Temper, by correcting the Acid, and promoting the Secretion of the Febrile Matter ; but why should I dwell upon the manifold Praises of this Natural, Volatile, Oily, Salt, whose Vertues cannot be contain'd in a small Volume?

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You may see this more largely in an Ingenious Piece of the learn'd Dr. Gronevelt, treating of the safe internal use of Cantharides in Physic, and necessarily of the wonderful Vertues of Camphir, which is the Specific Corrector of the Acrimonious Acid with which that little Insect doth so much abound, especially Fol. 50. These are his Words.

Febribus remedio est Camphora, Somnum conciliat, summum est Alexipharmacum, & venenum expurgandi vim habet, in Peste validissimum, potentissimumq; est Remedium, summa enim partium tenuitate prædita est Camphora, unde instar Spiritus Vini rectificatissimi sponte evanescit, ac in auras avolat, nisi probe recondatur.

The Famous Etmuller seems to take a peculiar Satisfaction in the Commendation of this Celebrated Vegetable Salt throughout his whole Works; it doth also abundantly

dantly appear in the Writings of many Eminent Physicians, that above all others Camphir is the most excellent ; infomuch as none of the Sons of Art, to whom this Noble Medicine hath been familiar, can be unacquainted with the salutarious Vertues thereof: But the Desire of unknown, and the Knowledge of uncertain things, is much alike ; for of what there is no certain Knowledge, the bare Opinion thereof cannot discover the certainty of that Remedy: It is also true, that nothing conduces more to a reasonable way of Curing than Experience.

I would not have the Reader mistake the meaning of this short Treatise of Practice, as if it propos'd to give a full Account of the whole Method of Curing Distempers, by way of Vomits, Purges, Glisters, Blisters, Bleeding, &c. or the usual Intentions in order
to

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to a Cure, which are distinctly treated of by several Authors in the larger Bodies of Physic, and cannot reasonably be expected in a small *Epitomy*, but only to point at some few Select Remedies, which together with the approved Method hinted herein, I have found so successful, as that by them, and the concurring assistance of the Patient, the Cure of all Distempers (that are Curable) may probably be perform'd.

The Forms of the *Digestive*,
Alterative, or *Absorbent* Pou-
ders are as follow.

- ℞ *Tartar. Vitriolat.* ℥j. *Sal. Absinth.*
Card. b. aa. ℥℞. *Caphur.* gr. ij. m. f. p.
- ℞ *Arcan. duplicat.* *Ocul.* ℥ ppt. aa. ℥j.
Sal. Genist. *Cochlear.* aa. ℥℞. *Sal. Vol.*
C. C. *Caphur.* aa. gr. iiij. m.
- ℞ *Sal. Digestiv.* *Coral. rub.* ppt. lap. ℥
ppt. aa. ℥℞. *Bezoard. Mineral.* *Ebor.*
Philosoph. ppt. *Sal. Absinth.* aa. gr.
vij.

viiij. Sal. Vol. Viperar. Caphur. aa. gr. iv. m.

R Nitr. Vitriolat. Cinnab. Antimon. aa. ʒʒ. Sal. Genist. Tartar. Magist. perlar. aa. gr. xij. Sal. Vol. Cran. human. Caph. aa. gr. vj. m.

R Crem. Tartar. Nitr. depurat. Antim. diaphor. aa. ʒj. Sal. Artemis. Cichor. Bezoard. Martial. aa. ʒʒ. Sal. succin. Caphur. aa. gr. vj. m.

R Nitr. Antimon. ʒij. Bezoard. Miner. Ocul. ʒ ppt. aa. ʒj. Sal. Absinth. Cent. min. aa. ʒʒ. Sal. Vol. Sal. Armon. succin. Caph. aa. gr. vj.

R Sal. digestiv. Nitr. Antimon. aa. ʒj. Ocul. ʒ ppt. Bezoard. Fovial. C. C. s. igne C. aa. ʒʒ. Sal. Absinth. Cent. min. ʒ. Sal. Armon. Caphur. aa. gr. xij. m.

R Arcan. duplicat. ʒj. Nitr. Vitriol. ʒij. Corall. r. ppt. Antim. diaph. Sal. Absinth. aa. ʒʒ. succin. Viperar. aa. ʒj. Caphur. ʒʒ. m.

R Tartar. Vitriolat. ʒʒ. Nitr. Chalyb. ʒʒ. Antihæc. Poter. Margarit ppt. aa. ʒij. Sal. Genist. Cochlear. Card. b. aa. ʒj. Sal.

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*Sal. Vol. C. C. Caphur. aa. gr.
xv. m.*

Let none suppose themselves under any Obligation to a strict Observation of the foremention'd Medicines, (tho' they are of a larger Extent than others) for my Design is not in the least to Hamper my self, or any one, by a close Confinement to this or that Receipt whatsoever, (the Method being much more Considerable in Curing Distempers than the best of Medicines) but rather to excite the Ingenious Artists (if they please) to add to these few, or fill up their Number, (for they are Capable of an immense Multiplication) either by altering them in Form, Substance, or Dose, according to the Nature or Circumstances of the Disease, Constitution of the Patient, and Discretion of the Physician, that they by their own Experience may find what I have often found by mine, *viz.* These Medicines to be
every

every manner of Way sufficient to assuage the Malignity of Preternatural Fermentation (if timely exhibited) promote the Digestion of Crudities, moderate the Vigour of Diseases, and render all Symptoms more Mild and Benign; whereby a favourable Opportunity is gain'd (which is no small Advantage) for the carrying off the Vicious Humours upwards or downwards, by Sweat or Urine, to the great Relief of Nature, according to *Hipp. Aph. 22. Sect. 1.* and no Way disagreeing with *Aph 29, 30. Sect. 2.*

If these digestive Salts be mix'd with Appropriate Waters, such as *Aq. Menth. Meliss. Cinnamom. hordeat. Lact. Alexit. Cerasor. nigr. &c.* in which Camphir hath been quench'd, by Addition of proper Syrups, they serve to compose alterative Juleps or Draughts, agreeable to the same Purpose, or they may be made up in Form of a *Bolus* or Electuary with Conserves, tho' in my Judg-

ment it should seem altogether needless to transform them into any other Shape, seeing that they may be so well contriv'd, as to be familiarly embrac'd by the most queasie Stomac, and so conveniently administer'd, as to serve for seasoning a Mess of Gruel or Broth ; or they may be swallow'd down in any more acceptable Vehicle, with this Caution, that Camphir ought never to be omitted where Malignity is suspected, nor *Sal Succini*, or *Absinth.* where the Head or Stomac are chiefly affected.

During the whole Course of these absorbent Pouders, it is fit the Patient should be constantly supply'd with some kind of Liquours, which may not only be grateful to the Stomac, but also powerful, to precipitate the Acrimonious Salts, which lie sculking within the Confines of the Jaws, from whence intolerable Thirst, and other dismal Symptoms, that commonly attend Feavers, derive their Origination. Wherefore, tho' several

ral Instances of this Sort, which we have us'd with good Success, may be given, yet to avoid unnecessary Prolixity, we'll lay down but a few, which may be branch'd forth into more, according to the Diversity of Occasions, and they are these.

℞ Pul. C. C. s. igne C. rad. scorzoner. aa. ℥ij. coq. in Aq. font. cum crust. panis alb. ad ℥j℞. colat. post levissimam Expressionem add. Aq. lact. Alex. ℥iv. Cinnam. fort. ℥℞. Tinct. Sal. Tartar. ℥ij. syr. e succo Citr. papav. errat. aa. ℥j℞. Sp. Nitri d. q. s. pro grato sapore m. f. Julap.

℞ Decoct. Alb. cum rad. scorzoner. ℥j. Tinct. Ros. violar. bdell. aa. ℥j. Aq. scord. comp. Menth. aa. ℥ij. Syr. Cydon. rub. idæi aa. ℥j. Sp. Sulphris q. pro s. grata aciditate m.

℞ Rad. scorzoner. acetos. aa. ℥j℞. herb. lujul. m℥j. Cort. Citr. ℥j. coq. in ℥iij. Aq. hord. ad ℥ij. colat. add. Aq. Ceras. n. Card. b. aa. ℥j℞. Tinct. Antim. ℥℞. Aq. Theriacal. ℥j. Syr. e. 5 rad. ℥iij. m.

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Sometimes these or such like Ju-
leps may be dulcify'd with the fol-
lowing Volatile Syrup, which is Ex-
cellent not only in Feavers, but also
in most Distempers.

℞ *Nitr. depurat.* ʒj. *Sal. Vol. C. C. suc-*
cin. aa. ʒiij. *Viperar.* ʒij. *Sal. Tartar.*
Mart. digestiv. aa. ʒjss. *Sal. Absinth.*
Genist. Cochlear. aa. ʒj. *Aq. Menth.*
Ceras. n. aa. ℥jss. *sacchar. alb.* ℥iij. f.
Syr. f. a. frigescenti Syrupo add. Sp.
Sal. Armon. ʒiij. *coletur per Mani-*
cam Hippocratis & servetur pro usu.

Wine diluted with Water may al-
so sometimes be conveniently given,
as well to comfort the weak Stomac,
as also to quench the violent Thirst
that is commonly very Troublesome
in Feavers, and also Nitre depurated,
or *Nitrum Antimoniatum* dissolved
in a proper Vehicle, or *Decoct. Coc-*
cineum in *Pharmacopœa Extempo-*
ranea, in the beginning of Feavers,
if the Body be Costive.

When the Physician is not sent
for till the Season of Evacuation be
over,

over, (which too frequently happens) Nature is necessitated (tho' upon very disadvantageous Terms) with the single Force of Alexipharmacs, to engage the united Strength of the advanc'd Symptoms; when by the increase of the Malignity she is exceedingly overpower'd, and many times irrecoverably lost, not being able to bear the Shock; but when proper Means are us'd in the beginning, Nature is enabl'd to give an effectual Rebuke to these dangerous Proceedings, and her kind Assistant is presented with a fair Opportunity to clear the first Passages of great Store of Vicious Humors, which not only give the first rise to, but also maintain the growing Power of, Malignant Distempers. Occasion or Opportunity, which is the most convenient Time for Action, (as the great Master teaches) is swift, and when once lost, can never be recall'd; therefore it is certainly the wisest Way to

take Time by the Fore-lock, resist the beginning of Disorders, and subdue the Disease in its Minority.

*Principiis obsta, sero Medicina paratur,
Cum Mala per longas invaluerint Moras.*

From whence it doth plainly appear, that the most probable Way to prevent the Increase of, or put a Period to, all Sorts of Distempers, is by anticipating the *Crisis*; and forasmuch as the greatest Part of the Symptoms, which usually molest the Patient in the beginning of Feavers, requires Evacuation upwards, that Method seems to challenge the Pre-eminence before others in the Cure of all Sorts of Feavers, provided Nature doth not endeavour to throw out the peccant Humours some other Way. In the beginning then (if Natures Endeavours appear not to the contrary, and no time can be allow'd for digestive Medicines, to
give

give some Check to the Febrile Ferment, and prepare it for a more kindly Evacuation) we think it most Convenient to give the first Attack to all Sorts of Feavers with a proper Vomit ; because the Original Seat of most Distempers, by Consent of the choicest practical Authors, being fix'd in the Stomac, and first Passages, they are best reliev'd by Vomits, which take away the very Root, or at least subtract the Fewel or Multiplication of the Morbific Matter, effectually prevent their Encrease, gently ferment the Blood, and consequently abate the numberless Train of Symptoms which attend them ; but in Contumacious Intermitting Feavers, especially Quartans, we judge it absolutely Necessary, because the main Stress of the Business, and Hinge of the Cure, consists in Vomits, which are incomparably more useful, to carry off the noxious Humours from those Parts than any purging Medi-

cines whatsoever; in favour of this *Hypothesis*, we may observe Nature her self many times giving early Indications of this singular Method, and earnestly beseeching her Handmaid's help, whose Duty it is by Art to imitate her diligent Endeavours.

But notwithstanding, when provident Nature does seasonably indicate this hopeful way of Recovery, we find by daily Experience some Persons labour under such ill Circumstances, as justly prohibit the Use of *Emetics*; others no way subject to such Inconveniencies, are kindly invited, by frequent Reachings, Heavings, and such like Motions, to partake of the unspeakable Advantages which result from Vomiting Medicines, yet dare not meddle with them, upon account of their Violent Operation, making the Stomac deadly Sick, extreemly Wracking and Straining all Parts of the Body,
and

and for this very reason are depriv'd of the most useful Branch of universal Evacuation ; so that it may be reasonably suppos'd many a skilful Phyfician, hath been diverted from his good Intentions, of relieving his Patient in such a regular Manner, and many a sickly Patient hath been deterred from the use of such violent Means, for fear of the ill Consequences which sometimes happen in the use of ordinary Vomits.

Taking it then for granted, that the best way to relieve oppress'd Nature, is by Anticipation ; and the best way to Anticipate the *Crisis* of Feavers, is by Vomiting ; and also provided such a Medicine were generally known by Experience, as would not only Vomit safely, easily, without painful Strainings, or grievous Sicknefs, but also carry off a vast Load of Slimy, Ropy, Vicious Humors, of all Sorts, from the Stomac, and
Parts

Parts adjacent, it might be presum'd the Physicians Reason would as readily direct him to prescribe so beneficial a Remedy more frequently, as the Patients Interest encourage him to embrace it more freely, considering that thereby not only the Febrile Ferment in acute Diseases is presently remov'd, but a good Foundation laid for a compleat Cure of many inveterate Diseases, which too often prove Reproachful to the One, and Fatal to the Other.

The Mineral Kingdom affords many remarkable Emetics, the most excellent of which are the Antimonial, *viz. Vinum Benedict. Tartar,* and *Syrup. Emetic,* being as pleasant to the Palate, as helpful to the Stomac; yet by reason of their Violent Operation, they are not useful to some Persons, whose weak Constitution and ill Circumstances cannot endure that
Strain-

Straining and Sickneſs which uſually attend them; how much leſs ought the *Salt of Vitriol* to be had in Eſteem or Uſe, being a Medicine as Calamitous as Nauſeous? For by its *Styptic* Copperiſh Quality, it perpetually twitches and irritates the Glandulous and Membranous Coats of the Stomac, and the Parts about the Jaws; it frequently ſtirſ up weak and unprofitable Endeavours to Vomit, but importunate and troubleſome Coughs when the Vomiting is over.

The ſafeſt and moſt ſucceſſful Vomits belonging to the Vegetable Family, are the Pouder of the Yellow Root of *Ipecacuanha*, and the Emetic Water diſtill'd from the Roots of *Aſarabacca*; and although there may be ſome ſhew of Reaſon for giving the Preference to the latter, as it is a transparent Liquor, no ways liable to that uſual

al

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al Objection, made to the Prejudice of Vomiting Pouders, whose minute Particles insinuating themselves into the Pleats of the Stomac, sometimes irritate the Fibres, to an *Hypercatharsis*, or immoderate Purging, yet this Root, containing a mild, somewhat sharp, acid Salt, is more friendly to Nature, than to produce such dangerous Effects, when it does enter the Pleats of the Stomac.

They are indeed both very Gentle, Safe, and Sovereign Medicines, worthy of the highest Commendation, because they work very easily and quickly, rendring this way of Evacuation by Vomiting as easie comparatively as Spitting. By my own Experience I have frequently seen the successful as well as easie Operation of them both in the weaker Sort of Constitutions, but never found any ill Effects, all that have taken them declaring they never took so easie a Vomit in
their

their Lives; so safe and easie they are, that no Constitution, Condition, or Circumstance whatsoever, which usually contraindicate or forbid the use of Vomiting Medicines, need debarr any one from reaping benefit by them, seeing the most tender and delicate Person, Young or Old, may take them without running any hazard at all; so beneficial likewise, that according to the abundant Satisfaction which many may receive from them, there's no doubt but they will find good Reason to recommend the use of them to others, as also without much perswasion (if need require) to repeat the same themselves, because they work very gently, first upwards, then downwards, and sometimes by Urine, in a plentiful manner.

As after the use of Preparatory Medicines, 'tis a proper Season to exhibit those that Evacuate the prepar'd Humours; so after Evacuation

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ation of the prepar'd Humours, by Vomiting especially, (if no reason appear to the contrary, because it is the principal and chiefest Branch of Universal Evacuation) Purging, Bleeding, Glistering, Blistering, *Pro re nata*, 'tis a proper Season to exhibit *Diaphoretic* and *Diuretic* Medicines, volatile or fix'd, to attenuate and disperse the Reliques of Crudity, procure a laudable Fermentation and Evacuation of the sharp Serum of the Blood, by the Cutaneous Glands, or the Urinary Passages; to which end, Nature her self, either with little or no Preparation, and Chymistry with Elaborate, give great plenty of Celebrated Medicines, extracted from the Three Kingdoms, such as the *Volatile* Salts, *Spirits*, *Tinctures*, *fix'd* Salts, *Sulphur of Minerals* and *Metals*, likewise *Opiates*, if the Patient labour under great Pains, or is restless, and to stop exorbitant Evacuations.

Now

Now also after Evacuation, in Intermitting Feavers, is the most convenient Season to exhibit large Doses of the Celebrated *Bark*, without any danger of Relapse, or ill Consequences, which frequently happen upon the imprudent use of this Famous Febrifuge; for hence it comes to pass, the first Passages being not well cleans'd, especially if the Febrile Ferment be contain'd in a Tough Viscous Vehicle, that not only the use of this Specific is render'd fruitless, by introducing a *Diarrhæa*, but also diverse hard *Schirrhus* Tumors of the Mesentery and Bowels, with other mischievous Inconveniencies, do proceed, which are not to be wash'd away with repeated Draughts of the Mineral Waters.

But if some Feavers should contract so great an Obstinacy, as to elude the Power of the Jesuits Bark, which sometimes may happen,

pen, yet they cannot refuse to yield Obedience, and submit to the penetrating force of the preceding Remedies, regularly exhibited, because they attenuate the strictest, intimate Viscosities, or most congeal'd, mucous Substance, and so' wholly extirpate the Cause of those rebellious Feavers.

Other Specific Remedies, in particular Diseases, may be safely and seasonably Administer'd, after the first Passages have been well Cleans'd; but they ought sometimes to be mix'd with proper *Stomachics*, *Sudorifics*, *Volatile* or *Fix'd Salts*, that they may not prove offensive, either to the Natural Appetite, or the Digestive Faculty.

By Means of the Volatile Salts, the Animal Spirits are suddenly rous'd up and encreas'd; for these Volatile Salts, (like Spirits to which they are Analogous and Homogeneous) very swiftly penetrate the narrow Mouths of the Vessels, and
quickly

and volatiliz'd; the Mass of Blood being thus redeem'd from Coagulation and Putrefaction, is maintain'd, in a due proportionate Mixture, and the Heterogeneous Particles, that are not Miscible with the Blood, and the several Juices of the Body, are seasonably expelled.

To conclude, if it may be as readily granted, as it hath been plainly demonstrated, that the Stomac is the place of the Nativity, and the acid viscous Crudities, by the default of the first Concoction, the primary Causes of most Diseases, then it will be justly query'd, why the Method of Healing also should not be for the most Part one and the same? Moreover, if most Diseases take their Original from Crudities of the *Chyle*, Stagnation of the Blood, and Coagulation of the Juices, why are not Saline Medicines more capable of dissolving the crude *Chyle*, diluting the coagulated Blood, attenuating the mucous Heap of tartareous

taresous Humours, and volatilizing the other sluggish Ferments of the Body, unlocking the manifold Obstructions of the Bowels that arise from thence, and so removing the very *Minera Morbi*, or Seeds of Diseases, than any other Medicines whatsoever? Seeing all Salts (especially some of the foremention'd) do not only challenge to themselves a peculiar Faculty of diluting, cleansing, and purifying the Congeal'd Blood and Juices, but also, by their penetrating Quality it is, that other Medicines become more easily dignify'd with the Crown of Success.

If then all these great and arduous things of Physic may be accomplish'd with a few choice, well prepar'd Medicines, it is in vain to overcharge the Sick with manifold more, not comparable to them, nor necessary to the Recovery of their Health; but by this singular Method, agreeable to the Rules of Physic, and these select Remedies, useful in all

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Manner of successful Practice, both being built upon the sure Foundation of Reason and Experience (exhibited by the Hand of a Skilful Physician) all kinds of Diseases (that are Curable) with their numberless Train of Symptoms that attend them, may not only be reasonably, safely, and quickly abated, but in Process of Time perfectly cur'd, and so the desirable End of Physic, which is Health, may be happily obtain'd; therefore it is needless to fatigue distress'd Nature with a Miscellaneous Heap of ordinary Medicines, and you, Courteous Reader, with a longer Discourse.

E R R A T A.

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